EUROPEAN
COMMISSION

Brussels, 18.2.2016
SWD(2016) 35 final

PART 1/2

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

Proposal for a Directive of the European Parliament and of the Council

on the recognition of professional qualifications in inland navigation and repealing Council Directive 91/672/EEC and Council Directive 96/50/EC

{COM(2016) 82 final}
{SWD(2016) 36 final}

Contents

1. GENERAL CONTEXT

1.1. Policy context

A Deeper and Fairer Internal Market with a Strengthened Industrial Base is one of the ten policy priorities[1] of the Commission. As Europe's best asset in times of increasing globalisation, the potential of the internal market needs to be exploited in all its dimensions. This includes maintaining and reinforcing a strong and high-performing industrial base for our internal market, bringing industry's weight in the EU's GDP back to 20% by 2020, from less than 16% today. Competitive industries rely on the ability to transport large volumes of freight in a cost-efficient way. Inland navigation plays a key role in this respect. Inland navigation vessels have a loading capacity that is equivalent to hundreds of trucks[2], which could help to save transport costs[3] and decongest roads. The EU inland waterways network spans 20 Member States[4] with about 41,527 kilometres of inland waterways[5]. Linked by the Main-Danube canal, the Rhine and the Danube directly connect 13 Member States[6] from the North Sea to the Black Sea over a length of 3,500 km. Every year, these waterways transport around 500 million tons of cargo, with Rhine traffic alone making up 67% of transport volume. Over 75% of Inland Waterway Transport (IWT) within the EU is cross-border tranport. In Germany, Belgium and the Netherlands, the modal split share of IWT is 12.5%, 25% and 38.7% respectively and on the Rhine corridor, the industrial heartland of Europe, even above 50%. With cargo of 150 billion tonne kilometres[7] on a yearly basis, IWT plays an important role in the functioning of the EU's multimodal logistic chains. According to recent studies[8], the € 2.2 bn added value in the IWT sector leads to direct and indirect economic added value of € 13.2 bn, i.e. a multiplier of 6.3. Through its support to strenthening the EU's industrial base, a more attractive IWT sector can help to maintain and further develop employment in the EU's industries, thereby also contributing to Commission President Junckers' priority of a New Boost for Jobs, Growth and Investment.

Transport also represents more than 30% of final energy consumption in Europe. 94% percent of transport relies on oil products, of which 90% is imported. As indicated in its Energy Union package[9], the Commission will pay special attention to those sectors with a huge energy efficiency potential, in particular the transport sector. In this context, considerable fuel savings could be realized by removing barriers to the development of less green-house gas intensive modes of transport such as inland waterways, and by making these modes more attractive and cost efficient.

At EU level, the IWT sector is small in relative terms with a 6.3%[10] share of total goods transported by inland modes. The potential of IWT is not sufficiently exploited. Even on the EU's main waterway axes, Rhine and the Danube, there is still a lot of spare capacity, contrary to the road and rail network which are heavily congested[11]. Multiple barriers faced by the IWT sector include the ageing of the workforce and the difficulty to recruit new entrants to the profession. They add to the economic difficulties following the economic and financial crisis which put also pressure on working conditions. Combined with the expected further increase in demand for IWT transport, the sector would, without mitigating actions, face severe shortages of skilled personnel over the coming decades.

The Commission's policy framework for promoting IWT is NAIADES II[12], which supports the IWT sector striving to develop its full potential. NAIADES II identifies "Skilled workforce and quality jobs" as a key area of intervention and pursues also better governance through improved cooperation with the international River Commissions, which have legislative powers in the field of inland navigation. As a result, the CESNI[13] has been created on 3 June 2015 by the CCNR, which is part of a new framework for the elaboration of uniform technical standards for all EU inland navigation activities coverring also professional

qualifications, including on the Rhine. NAIADES II and EU action in the field of IWT professional qualifications thus contributes also to the realisation of a fourth out of the ten priority policy areas of the Juncker Commission: a Stronger Global Actor. Through the Trans-European Transport (TEN-T) network[14] and the Connecting Europe Facility (CEF), the Commission furthermore prioritises investments in inland waterway transport, for which co-financing rates are amongst the highest compared to other transport modes.

1.2. Legal framework

IWT in the EU is administered under various legal regimes. The main regulatory actors in the inland navigation sector are the European Union (EU), the Central Commission for the Navigation on the Rhine (CCNR)[15], the Danube Commission (DC)[16], the United Nations Economic Commission for Europe (UNECE)[17], the Sava Commission[18], the Moselle Commission[19] and individual member states, with each organisation having a different (but, to an extent, overlapping) regulatory and geographical scope.

The various regulators also have different implementation mechanisms. Only the EU can adopt binding rules which are valid for the entire inland waterway network in the EU. The rules adopted by the CCNR, the Sava and Moselle Commission are binding for navigation on their respective rivers. In the framework of the Belgrade Convention for navigation on the River Danube, only 'Recommendations' can be adopted. The same applies for the UNECE.

In general, regulation on the IWT labour force aims at greater harmonisation. However, differences remain for the recognition of workers' professional qualifications, including in the area of requirements for boatmasters' certificates, where efforts to harmonize have been mainly focussed.

The highest level of harmonisation for professional qualifications has been achieved by the CCNR that has drawn up rules governing navigation on the Rhine since 1868. Matters related to personnel are ruled by the Regulations for Rhine navigation personnel (RNP)[20]. Stringent standards are defined for crew members' qualifications and for obtaining Rhine patents, which authorise boatmasters to navigate on the Rhine. In addition, CCNR has signed mutual recognition agreements for boatmasters' certificates and Service Record Books of crew members[21].

At EU level, two sets of rules are relevant for the recognition of professional qualifications. For crew members other than boatmasters, Directive 2005/36/EC on the recognition of professional qualifications[22] provides a general legal framework for professions that are regulated in a host Member State and for which no EU sector-specific regulation has been adopted. For boatmasters, a set of specific sectoral EU rules is applicable:

- Council Directive 91/672/EEC of 16 December 1991 *on the reciprocal recognition of national boatmasters' certificates for the carriage of goods and passengers by inland waterway* provides for the mutual recognition by the Member States of each other's boatmasters' certificates and

- Council Directive 96/50/EC of 23 July 1996 *on the harmonisation of the conditions for obtaining national boatmasters' certificates for the carriage of goods and passengers by inland waterway in the Community* lays down harmonised basic conditions for obtaining national boatmasters' certificates for inland waterway navigation between EU member States.

As far as UNECE is concerned, Resolution 31 provides measures for the issuance of Boatmasters Licenses[23]. The Recommendations of the Danube Commission on boatmasters' licenses are built substantively on the provisions of Resolution 31 of the UNECE and of Directive 96/50/EC.[24] The Sava Commission has issued binding resolutions on qualifications for nautical personnel and set rules on minimum requirements for the issuance of boatmasters' licences. The Moselle Commission does not regulate on qualifications.

2. CONSULTATION AND EXPERTISE

This Impact Assessment Report (IAR) was elaborated with the support of internal and external consultation groups, as well as with the expertise of external consultants.

2.1. Interservice group

This IAR was elaborated by DG MOVE. DG MOVE was assisted by a Commission Impact Assessment Steering Group (IASG). The IASG met several times: in September 2012, January 2013, February, October and December 2014, and February and October 2015. The following DGs were invited: Secretariat General, Legal Service, DG EMPL, DG ENTR, DG EAC, DG MARKT, DG ELARG, DG RTD, DG EAC, JRC and EEAS.

2.2. Consultation of the Regulatory Scrutiny Board

This IAR was reviewed by the Regulatory Scrutiny Board (RSB) a first time on 21 January 2015. Based on the Board recommendations, the IAR has been revised as following:

Firstly the main problem, the problem drivers as well as the objectives have been reformulated and better situated in the framework of the Commission's political priorities. The focus has been restricted to the mobility barriers hampering the future development of IWT sector. Whereas safety is not presented any longer as one of the problem drivers requiring EU intervention in the field of qualifications, it remains a key element within the IAR through the assessment of safety impacts for each measure as the level of safety has to be maintained (and wherever possible even improved).

Secondly, policy options have been re-designed. The former option on the recognition of professional qualifications at EU level based on minimum competence requirements for boatmen and boatmasters has been differentiated into two suboptions: one suboption including and one suboption excluding examination standards for training and education institutes.

Finally, the various policy measures have been further clarified, the rationale for grouping them into policy options has been better explained, quantitative data have been used in a more balanced way and the contribution of the initiative to the streamlining of international IWT governance has been updated.

The second version of the IAR received a positive opinion [link] on 31 July 2015. The present final version of the IAR takes into account the recommendations for improvements by the mean of clarifications or complementary information in the appropriate IAR section. The way some issues considered important by stakeholders (including safety and communication) have been addressed in the IAR has been clarified under section 2.3., the importance of IWT labour mobility relative to other factors that might hinder achieving full growth potential of the IWT sector has been highlighted under section 3.2., some measures have been further clarified under section 5.1. and the reasons for discarding a number of policy options have been also clarified under section 5.2. The impact of the different policy options on labour mobility, access to the profession and labour wages are addressed in detail under sections 6.1.1. , 6.1.2 and 6.1.5. It has to be noted, however, that the nature and diversity of the IWT sector as well as the lack of quantitative data makes it very difficult to provide further quantitative projections. On the impact on wages stakeholders, including social partners, were consulted following the first opinion of the Board. They considered it was not an issue raising concerns.

2.3. Consultation of stakeholders

An online public consultation on the essential elements of the IA took place from 26/3/2013 to 21/6/2013[25]. The Commission services received a total of 94 replies from education and training organisations, entrepreneurs/ship owners, shipping companies, public authorities,

ports, workers' organisations and river commissions. Responses came from a total of **16 countries**; most responses were from Romania, Germany, the United Kingdom, Slovakia, the Netherlands, Hungary, Austria, Croatia and Belgium.

The online public consultation confirmed that the problems identified in this IAR (cfr. Chapter 3) are of high importance. The majority of the respondents considered the various problem drivers, and subsequent policy objectives identified, highly relevant. All issues considered important by stakeholders have been taken into account in the IAR[26]. The responses indicated a high level of support towards regulatory measures in relation to the harmonisation of professional requirements, qualifications and examinations in inland navigation between EU Member States, whereas the introduction of voluntary measures or recommendations received a considerably lower level of support. There is a large degree of homogeneity between the views of the different stakeholder categories. There are no dissenting opinions, apart from the United Kingdom's responses, which reflect their special position as a non-interconnected inland waterway country. Stakeholders' views expressed in the online public consultation are presented in more detail in Annex 1.

Common Expert Group: In 2012 the Commission created a Common Expert Group on professional qualifications and training standards in inland navigation (CEG). The objective of this group is to support the Commission in developing legislative measures concerning future European standards for professional qualifications, certification and a minimum level of training in inland navigation. The consultation within the CEG (E01036/'CEG') took the form of **11 expert meetings** between September 2012 and November 2014. The following organisations were represented: 1) international river commissions: CCNR, DC, Sava Commission, 2) UNECE, 3) National administrations in charge of IWT policy-making and legislative and administrative activities, 4) Professional organisations: European Barge Union (EBU-UNEF) & the European Skippers Organisation (ESO), 5) Trade unions: European Transport Workers' Federation – IWT section, 6) PLATINA - Platform for the implementation of NAIADES[27], 7) IWT Training and education institutions in Europe EDINNA[28], 8) AQUAPOL[29] & European Federation for Inland Ports (EFIP). The studies prepared by the external consultants in support of the present IAR were presented to the CEG in order to receive feedback on the plausibility of the conclusions.

Meetings of the CEG confirmed a broad support for an initiative at EU level as expressed through the online consultation. There were only few contradictory opinions on the objectives to be pursued. In particular the CEG considered that the initially envisaged idea of a rapid introduction of electronic tools (e-Electronic Service Record Books –e-SRB– and e-logbooks) not mature enough and required further substantial analysis. This led to the decision to separate (at least for this first stage) this aspect from the general initiative on professional qualifications and to proceed for the introduction of electronic tools with a separate impact assessment (see sections 3.3.1.2. , 5.1. and Annex 11). The CEG provided the opportunity for useful exchanges on the measures envisaged for a possible Commission proposal.

The Sectoral Social Dialogue Committee for Inland Waterway Transport (SSDC) at European level[30] was regularly kept informed about progress in the framework of the meetings of this Committee. The social partners submitted a document called "social partners' position on professional qualifications and training standards for crew members on inland waterways transport vessels", dated 16/09/2013. In the framework of the preparation of this IAR, they were also invited, at the SSDC meeting of 05/05/2014, to provide specific comments on the social impacts of the envisaged measures through their representatives participating in the CEG. The SSDC instrument welcomed the initiative and confirmed the need for a modern and flexible regulatory tool regarding training and certification, which will allow the development of a fair and competence-based access to the profession improving also the level of safety. In this context, the social partners encouraged the use of CCNR's expertise and the work

produced by EDINNA within the Platina I project[31]. After having been informed about the negative IAB opinion, the Representatives of the employers' side re-affirmed at the SSDC meeting of 30 January 2015, their continuing support for this initiative. The Representatives from the trade unions pointed out that social partners have been heavily involved in the process which has started already in 2012 and that they would regret if the initiative would not go culminate in a Commission proposal.

From the numerous and repeated consultations with stakeholders, it can be deduced that experts and stakeholders largely support a regulatory initiative at EU level. The stakeholders' and expert's views are presented in more detail throughout this IAR where relevant. The minimum consultation standards of the European Commission have been respected.

2.4. External expertise

External expertise was used to evaluate the legal framework on professional qualifications in inland navigation[32]. The study showed that the existing framework has been partially effective in fulfilling the objective of reciprocally recognising boatmasters' certificates and harmonising conditions for obtaining boatmasters' certificates, but that several barriers remain. Based on this evaluation, an external impact assessment support study has been launched[33]. The study confirms the mobility problem as defined in this IAR. Furthermore, it analyses possible solutions and their impacts. The results of this study are referred to throughout this IAR where relevant.

3. PROBLEM DEFINITION

3.1. Description of the main problem

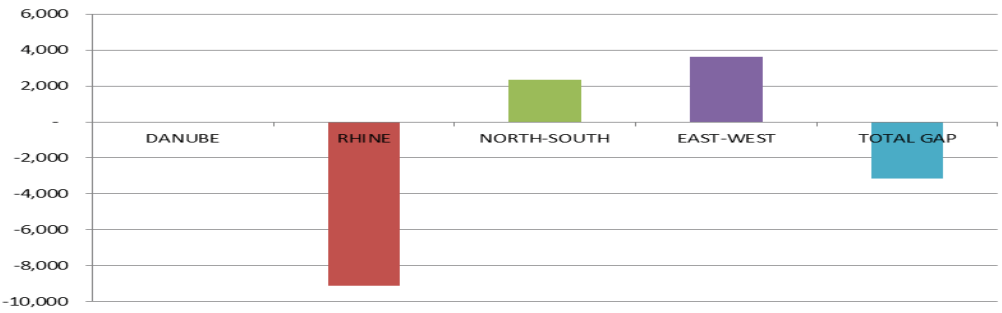
The future development of the inland waterway sector is ***hampered by difficulties in terms of labour mobility, persistent vacancies and skills mismatches***. The potential benefits of inland navigation can only be brought about if a skilled workforce is available to ensure that the sector can take on its role in the logistics chain in a safe way.

Box: Key figures on the EU IWT labour market

- 41,500 workers: about 14,650 boatmasters and 26,850 operational workers[34].
- Netherlands, Germany, France, Luxembourg, Italy, Belgium, Romania and Bulgaria represent 80% of the total IWT labour force.
- 75% of IWT within the EU consists of cross-border transport. The majority of workers is active on the Rhine corridor.
- Share of non-national workers: 27% in Netherlands, 23% in Germany, 14% in Belgium[35].
- 9,482 IWT companies:[36] 45% of these are Dutch. Micro enterprises owning/operating one vessel represent 80-90% of the market in the western part of the EU.[37]
- About 40% of the employment is linked to passenger navigation[38].
- The share of self-employed and employees in Europe is respectively 27% and 73%.[39]

The situation on the IWT labour market is shaped by two market forces: the demand of workers, determined by transport volumes of both the passenger and the freight market, and the supply of workers, which is driven by career perspectives and new entrants to the sector. Several submarkets can be identified in IWT. They are presented hereafter as four distinct corridors.[40] As regions are interconnected, workers tend to be mobile. As shown in Figure 1, there are nevertheless regional **differences in supply and demand of workers on the various corridors**:

Figure 1 Gap in number of workers between demand and supply for corridors in Europe in 2013



Source: Panteia (2014)

Deficits currently exist for the Rhine corridor, while there is a surplus of workers on the North-South and East-West corridor. As a result, a significant number of workers from Eastern-Europe, in particular from Poland and Czech Republic are working on vessels sailing under the flag of the Netherlands and Germany.[41] Annex 3 provides detailed information about the labour market model developed by the external consultants, on which figure 1 is based.

Overall, the current **skilled workforce is ageing**. The average age of Belgian, French and German boatmasters is older than the European average. Most of these boatmasters will retire within 10 to 20 years. There are also **difficulties in recruiting** young people. In recent years workers' shortfall in Western-Europe has partially been resolved by hiring crew members from Eastern European countries and to a lesser extent, from the Philippines and the 'hidden reserve'.[42]

Whereas over 75% of IWT within the EU consists of cross-border transport, the **internal labour market is still not accomplished** due to the various drivers and root causes described below. The various regulatory regimes that are simultaneously applicable in Europe, as described under section 1.2., result in **different procedures, standards** and mechanisms for the recognition of professional qualifications. Difficulties remain despite progress towards harmonisation of the requirements applied under the various regulatory frameworks made over the last two decades. The Council of the European Union, in its Conclusions of 16 June 2011, stressed the **complexity** of the current organisational structure of the sector, and the need to facilitate decision-making and reinforce cooperation between the different actors in order to come to a more integrated and competitive EU inland waterway transport. 80% of participants in the online public consultation are of the opinion that the multiplication of national or transnational rules and regulations is an important or very important **problem for the mobility of workers** (see details in section 3.3.). Indeed, whereas some years ago most workers were generally only active in their native river basin, navigating personnel aboard a vessel nowadays have increasingly diverse origins and need to be increasingly mobile. **The current organisational structure and legal frameworks governing the sector have proven to be a major obstacle to addressing these problems. Difficulties related to labour mobility therefore cannot be solved by the sector alone.** They have an impact both at the level of the individual workers (barriers to free movement) and at European level (integrated market, regional differences in supply and demand of workers).

This IAR restricts itself to labour mobility issues. It does not address other problem drivers linked to the lack of qualified staff and more globally to lack of sector attractiveness. Increasing sector labour shortages can be further addressed through initiatives at other levels: e.g. supporting innovations aimed at improving physical and mental working conditions, dissemination of good practices of employability policies, IWT sector promotion campaigns, building a continuous recruitment strategy, for instance in the form of a shared funding, to make training of new employees a shared responsibility for all ship-owners[43]. The need for

electronic tools (smart tachograph and an individual crewmembers' smart card) is addressed under section 3.3.1.2.

1.1. Negative consequences of the problem

1.1.1. Consequences for the IWT sector

Labour shortages in some regions in combination with difficulties related to mobility entails the **risk of recruiting personnel that does not have the necessary competencies** (see more explanation under section 3.3.1). AQUAPOL points out that the lack of uniform rules hampers effective enforcement, which makes the inland shipping sector vulnerable to illegal practices (e.g. forged documents) that threaten the level playing field.

Without the safeguard of a solid framework that governs professional qualifications for the whole sector, fierce competition combined with unsolved difficulties described above will also further **reduce the attractiveness** of the profession to new entrants. In the long-term, this could potentially result in refusal of orders for shipping goods in regions with a shortage of workers.[44] The resulting loss of reputation in the sector could **negatively impact its competitiveness**. It **may also negatively impact the safety** of inland waterway transport. Workers' competencies clearly have a correlation with human errors. Highly skilled workers on board ships have the ability to prevent accidents whereas workers lacking competence can cause accidents. It is important to highlight that **when accidents do occur in IWT, they can have far-reaching consequences**.

The "Waldhof" tanker accident in 2011 caused considerable societal loss due to the blockage of the Rhine River for 33 days, resulting in a backlog of over 400 vessels, as well as the loss of two lives and considerable financial losses.

The cause of the "Waldhof" accident can be linked to competencies as an improper load distribution on the ship is considered to be the cause of the Waldhof's poor stability. Another frequent cause of accidents is miscommunication/language problems, another matter related to skills[45]. As a third illustration of the importance of competence for safety is the increasing importance of Liquid Natural Gas (LNG) as a fuel for inland shipping. It has already been agreed among experts that specific knowledge and skills should be required from crew operating on vessels functioning with LNG.

It should be also underlined that current safety levels in IWT are not only a product of legislation in force but also of practices developed over many years by the profession. Navigation on large convoys or on cruise ships is an example. Although according to the regulatory framework a skipper can navigate these vessels with the patent/boatmaster certificate, shipping companies have put in place a career management system that includes additional requirements in terms of experience and lifelong training. However, increased competition between operators could lead to the degradation of these voluntary practices with negative effects on safety levels.

1.1.2. Consequences for the EU economy

The indirect value added of IWT to Europe's GDP is substantial but not directly visible in official statistics[46]. According to recent studies[47], the € 2.2 bn turnover in the IWT sector leads to direct and indirect added value of € 13.2 bn, i.e. a multiplier of 6.3. However, the potential of the IWT sector for strengthening the European industrial base is currently not fully exploited.

Given that logistics, including transport and storage, account for 10-15% of the cost of a finished product, economies of scale provide an incentive for industries to concentrate their production in selected geographical areas where aggregate logistics costs are minimised. This can be achieved by locating production either in the largest markets or along axis where

transport costs to the markets are low. Population density and transport costs therefore affect the degree of spreading of manufacturing across a region.

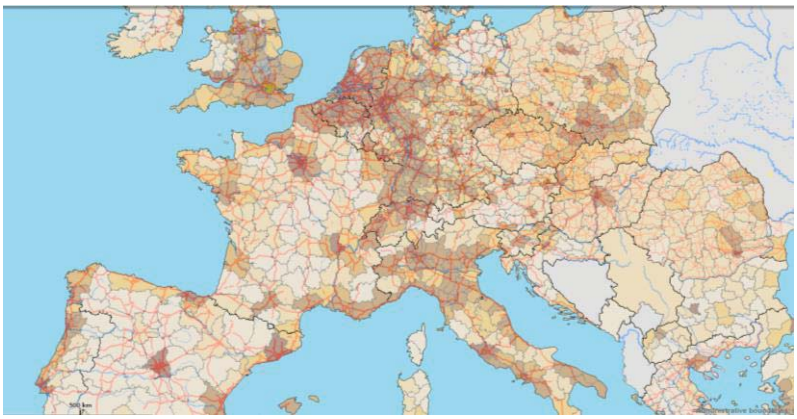


Figure 2: Eurostat statistical atlas: density of population by Nuts 3 region, 2012

Inland waterways play an important role for the location of industrial production capacity. Half of Europe's population lives close to the coast or to inland waterways (see Figure 2). Since 2008, waterway transport, already at a low level, has fallen most compared to other transport modes (land and air transport)[48]. Increased use of inland waterway transport can help to keep the costs for exports low and hence stimulate industrial export orientated activity. In particular inland and sea ports are recognised as attraction poles of industrial activity. The 2014 European Competitiveness Report 'Helping Firms Grow' identifies transport costs associated with export as one of the factors influencing SMEs' decisions to enter foreign markets.

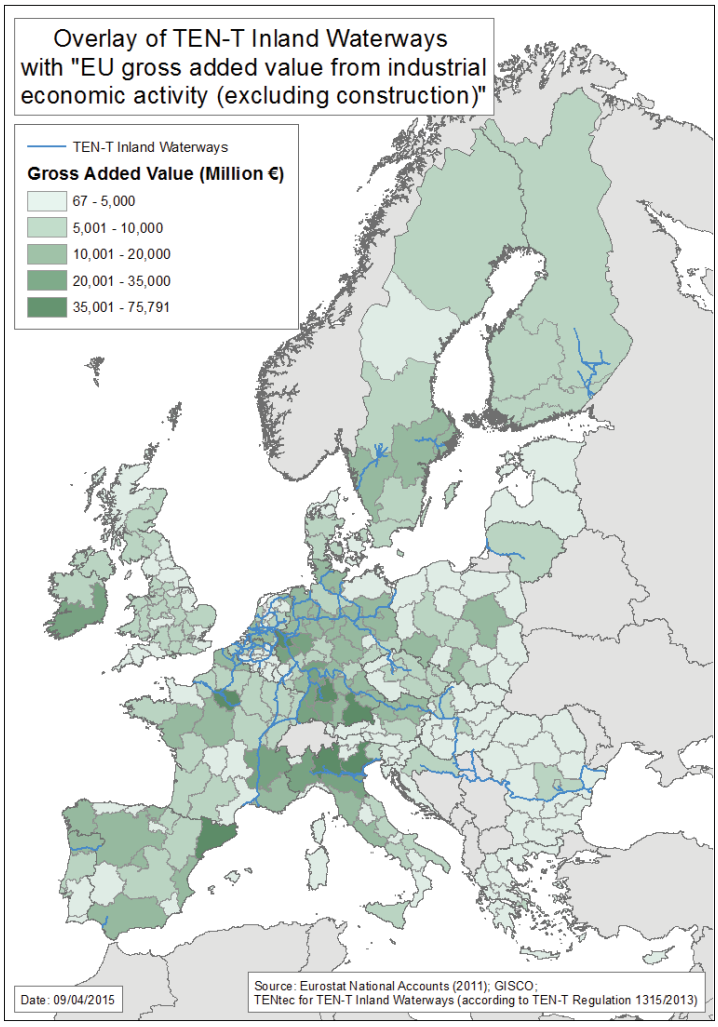
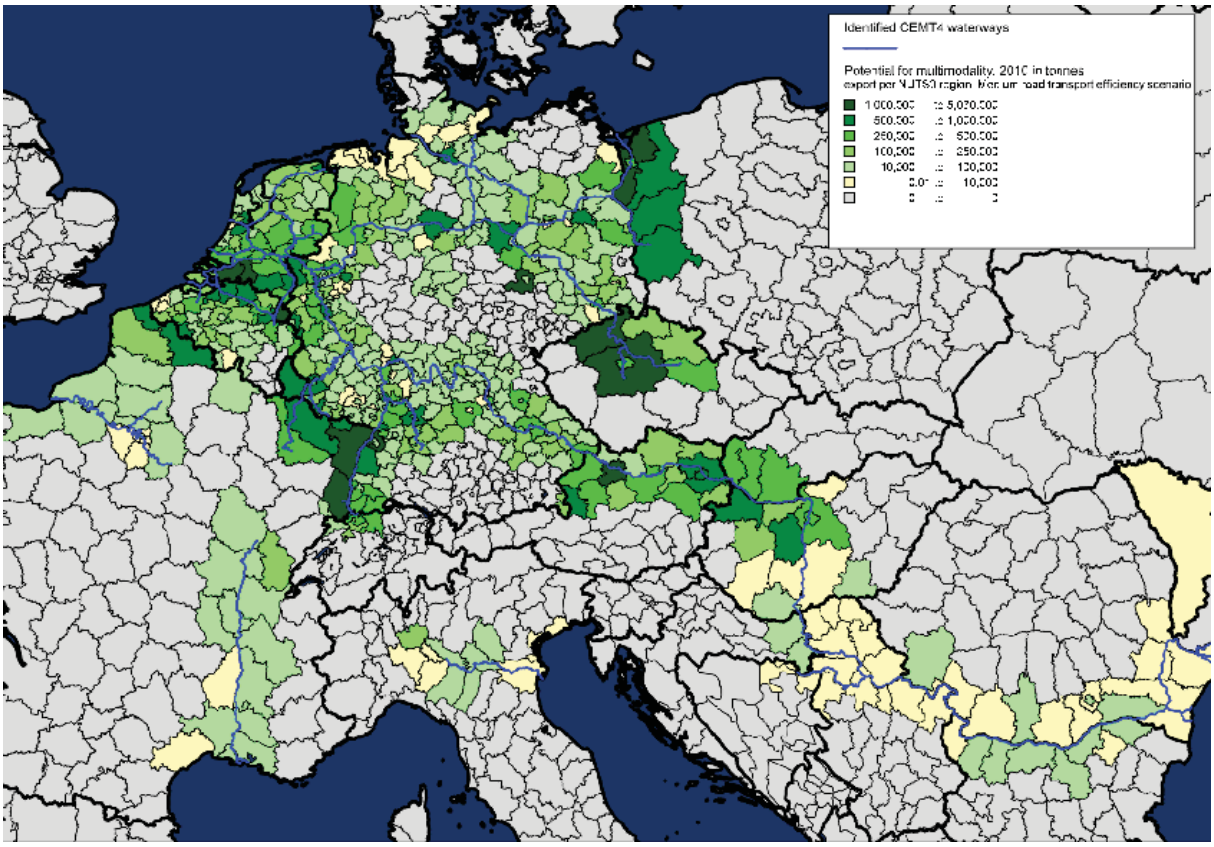


Figure 3: Overlay of TEN-T Inland Waterways with EU gross added value from industrial economic activity excluding construction

As can be seen from Figure 3 most of the regions with a high concentration of industrial activity have good waterborne – maritime and inland waterway – transport links. Many of the industries in these regions can be reached by inland waterways, either alone or in combination with other transport modes.

Comparing figure 3 with Figure 4 showing the untapped potential for transport by inland waterways of export of containerized continental cargo in north-western Europe, allows seeing that many regions with high industrial economic activity also have a high potential for increasing use of inland waterway transport.

Figure 4: Map of untapped potential of containerized continental cargo for export – North-west Europe



The map in Figure 4 results from an analysis[49] estimating that if only for the segment of intercontinental container cargo the untapped potential would be realised, the overall volumes transported in the EU by inland waterway transport would increase with 17%, with a resulting decrease in overall logistics costs of 899 million € per year for the industry. Another recent study for the Danube region[50] has identified significant indirect employment effects if the share of IWT transport increased with 20% by 2020. Such increases can be captured by the sector without major investments. Free capacity is still available on the EU's inland waterways. Even on the Rhine, the EU's busiest river in the EU's industrial heartland, transport density can be further increased with 100% without recourse to major infrastructure works.

Inland navigation is today a key asset for the manufacturing industry. For instance, inland waterway transport is the dominant transport mode on the Rhine-Alpine corridor, with 54% of the transport share in cross-border flows.[51] However, if the use of IWT in multimodal corridors would not improve or even decrease, and the functioning of the IWT labour market is an important factor for this, the IWT sector's contribution to the European industrial and the long term growth potential of the EU economy would not develop optimally.

As inland navigation is more than twice as energy efficient as road transport[52], barriers to its full development will also negatively impact the evolution of the overall energy efficiency of the EU's transport system.

Inland navigation is also a priority for support by the TEN-T and Connecting Europe Facility Regulations. The EU is investing important budgets for the upgrading of Core network inland waterway infrastructure.

Realising growth will also require innovation. The innovation gap has negative consequences for the attractiveness, competitiveness, safety and sustainability of inland waterway transport. **Investments and innovation are the most urgent needs for the sector development.**

However, they will only bring their full benefits if also the market-sided barriers are tackled, including barriers to labour mobility.

3.3. Underlying drivers of the problem

3.3.1. Problem Driver 1: Workers face difficulties with mutual recognition of professional qualifications

Since boatmasters and operational staff on board vessels are covered by different legislative frameworks, these two categories of workers are addressed separately below.

3.3.1.1. Difficulties with recognition of professional qualifications at boatmasters level

National boatmasters' certificates issued on the basis of the EU Directive are not automatically recognized for navigation on the Rhine

The CCNR celebrates this year its 200 year anniversary. The respective areas of competencies between this long established international organisation and the EU have evolved over time and have taken time to clarify. Because of this and because of the difference in the level of minimum standards envisaged for the whole of the EU and those for the Rhine which were more stringent, the Rhine was excluded from the scope of Directive 96/50/EC, which resulted in two different legal regimes for boatmaster certificates. The EU Directive recognizes the validity of the Rhine patent for all EU inland waterways but the national boatmasters' certificates issued on the basis of the EU Directive *(hereafter, 'EU boatmasters' certificates')* are not automatically recognised for navigation on the Rhine. The Rhine Patent imposes a higher threshold on age, physical and mental fitness, as well as experience and professional knowledge. A comparative table is presented in Annex 4[53].

As mentioned above, the CCNR recognizes boatmasters' certificates issued by other EU countries via **bilateral agreements,** following voluntary requests submitted by these countries. At present, CCNR recognizes the national certificates of seven non-CCNR member states (Austria, Bulgaria, Hungary, Poland, Romania, Czech Republic and Slovakia), and three out of five CCNR member states (Belgium, Germany and the Netherlands).

Around 15% of the EU boatmasters' certificates are not covered (i.e. 6 Member States) by bilateral agreements and as such are not automatically recognised as valid on the Rhine. The requisites by the CCNR for automatic recognition are considered such an obstacle for some countries, like France (a CCNR Member State), that they have chosen to stay outside the CCNR recognition system. The main issue for France is that it has a different system for calculating professional experience (100 days of navigation time-count as one year, instead of 180 days under RNP). In addition to France, also Croatia[54], Sweden, Finland, Lithuania and Estonia do not have their EU boatmasters' certificates recognised by the CCNR although these are issued in line with Directive 96/50/EC[55]. In total, it represents around 1000 boatmasters.[56] See Annex 5 for countries that mutually recognize each other's boatmaster certificate.

These bilateral agreements, which are administrative arrangements, also have several inherent limitations for the signatories (10 Member States):

1) Additional conditions are imposed for the certificate to be valid on the Rhine. These conditions[57] mainly concern, the minimum age, the renewal of the physical and mental fitness certificate and the knowledge of specific situations[58] required on the Rhine. Only Germany is concerned only by the latter one. The other Member States (representing close to 70% of all EU boatmasters) have to meet additional conditions. They are attested by additional documents which must be presented at the same time as the national certificate.

2) The recognition process is based on a country individual request submitted to the CCNR and is a very lengthy procedure due to a thorough assessment of each individual dossier, with potential necessary adjustments in the legal system of the requesting party.

3) There is legal uncertainty regarding provisions for recognising EU certificates on the Rhine. The free movement of boatmasters within the EU is consequently not legally guaranteed even for recognised certificates as the CCNR is free to withdraw recognition.[59] The arrangements do not constitute an international agreement under public international law, involving the international responsibility of the contracting parties. If a change is made in an uncoordinated way, it could justify denunciation of the arrangement. The basis for this challenge is objective but could show a certain complexity of "proving" non-equivalent performance. Furthermore, it is difficult and complex to modernise the existing set of agreements in a coordinated way, as these have been negotiated on a bilateral basis. The profession of inland waterway transport is in constant evolution. Technologies such as River Information Services are under constant evolution, with the introduction of increasingly sophisticated navigational aids with a future perspective of evolution towards (semi-) automatic navigation. New vessel concepts are emerging (e.g. modular push-barges, new markets are under development (e.g. container transport), new vessel technologies require special competencies (e.g. LNG-fuelled vessels) and new training tools are under constant development (simulators).

Although the mutual recognition process initiated by the CCNR has to a significant extent enhanced labour mobility for boatmasters in the EU, it does not allow the full mutual recognition of boatmasters' certificates across the EU's inland waterway network and the system is difficult to adapt to evolution in the sector.

The legal frameworks are insufficiently focused on proven competencies

Under the existing system set up under the RNP and Directive 96/50/EC, it is possible to become a boatmaster after respectively 5 and 4 years of experience. Both Directive 96/50/EC and RNP require to pass an examination of professional **knowledge** with a specific list of subjects that have to be included in examination. RNP requires a **theoretical exam** whereas the EU Directive does not specify the method of examination. As a result, the majority of boatmasters navigating on the IWT network does not pass a practical examination for obtaining their navigation licence. The external evaluation pointed out that **sailing records give no indication** about navigation skills acquired. For instance, hotel crew on passenger ships can accumulate sailing time records without acquiring any navigation experience. The evaluation concluded that it is necessary to verify through a practical exam whether the required level of competence has effectively been reached. Competence-based standards have to be set for examination in order to improve the qualification of workers and to enhance trust necessary for eliminating barriers to labour mobility.[60] Regarding this latter aspect, it should be noted that in the last two decades training and education systems in general have been moving away from the traditional focus on knowledge towards more competence-based teaching and assessment. This reflects the desire to assess the knowledge and practical skills of candidates with differing abilities, cultural and linguistic backgrounds,[61] with the objective of favouring mobility. In a competence-based approach, the criterion for awarding qualifications is not duration of experience – it is based on whether candidates can prove they have mastered competencies – the skills, abilities, and knowledge required for the function. The best example illustrating how a competence-based system could facilitate cross-border mobility is the current dead lock between France and the CCNR over the counting of navigation experience as a criterion for recognition of boatmasters' certificates.

The existing possibility provided by RNP to exempt parts of the Rhine patent examination if certain subjects have already been tested in the framework of examination carried out by

recognised education and training institutes[62] is not available in the EU legislative framework and is also under-used on the Rhine. In the absence of common competence-based standards for examination that could be applied by education and training institutes and backed up by a quality assurance system, it is understandable that the administrative authorities wish to keep responsibility for candidates' full assessment before issuing boatmaster' licences.

As a result of the fact that for both the EU and CCNR systems the point of departure is experience rather than competence, **competencies obtained outside the IWT sector are only taken into accoun**t **to a very small extent**. The RNP and Directive 96/50/EC allow for reductions in required professional experience for obtaining the Rhine patent or boatmaster certificate respectively, as a result of experience acquired on a seagoing vessel. The RNP and Directive 96/50/EC allow a maximum reduction of two and three years respectively. However, the actual reduction allowed varies from country to country.[63] Stakeholders in general consider that the required IWT experience for seafarers is too stringent, in particular on the Rhine and for countries applying a smaller reduction than the maximum allowed. Potential career changers from sea to inland navigation may need to spend two years on board of inland navigation vessels in a lower function and at reduced wages, which does not make the career switch attractive. It is a real problem in particular as the sector suffers from insufficient job attractiveness. A competence-based approach applied to the boatmaster exam would offer much more flexibility for lateral entrants, regardless of their background.

3.3.1.2. Difficulties with recognition of professional qualifications of operational staff

There is no EU sectoral legislation covering operational workers and there are limitations to the CCNR recognition system

Functions on board the vessel for operational staff are defined at national level and at the level of the River Commissions. At European level, there is no EU sectoral legislation for the recognition of professional qualifications for operational workers below the level of boatmaster, which represent around 65% of IWT workers[64].

Below the level of boatmaster, the main functions found in the manning regulations[65] are the following: **'deckhand', 'apprentice', 'boatman', 'able boatman' and 'helmsman'**. The list is presented in hierarchical order and may be considered as the classical career path. Besides these functions, for certain convoys the function of 'engineer' also appears but this function is part of a distinct career. 'Deckhand' and 'apprentice' are the two lowest levels of entry into the career for which only minimum age and medical requirements apply. 'Boatman' is the first level for which specific skills are needed and the only one on which IWT education focusses. The set of competencies expected from a boatman is already very wide and demanding (it covers navigation, cargo handling, engineering, maintenance, communication, safety, operation of the ship)[66]. 'Boatman' is also the minimum qualification which is required onboard of any vessels in addition to the boatmaster. Boatmen obtain the qualifications of 'able boatman' and 'helmsman' through additional navigation experience. Annex 6 shows the existing functions and an overview of the professional requirements for these functions in the main manning regulations[67]. The **national differences in defined** functions and related professional requirements prevent a common understanding of what a function stands for, and what qualifications are required to carry out the function.

The CCNR recognizes Service Record Books (SRBs) issued by other EU countries via a **multilateral Administrative Arrangement[68],** following voluntary requests submitted by these countries. Service record book record the experience of crew on board ships. They are paper formulae that are manually filled out by the boatmaster and validated by authorities. SRB are intended to attest experience of crew members. At present, CCNR recognizes the SRBs of seven non-CCNR member states (Austria, Bulgaria, Hungary, Poland, Romania,

Czech Republic and Slovakia), and three CCNR member states (Belgium, Germany and the Netherlands).

Half of the EU Member States having inland waterways remain outside the scope of the recognition system. On the interconnected network, this includes again in particular France as well as Croatia, which represent more than 11% of the total operational workforce. Around 5% could be added if we consider workers from Estonia, Finland, Sweden, Lithuania.[69]

The agreement has also inherent limitations for its signatories (i.e. 10 Member States representing more than 55% of all operational workers):

1) Need for alignment to CCNR standards. SRBs covered by mutual recognition contain a separate page reserved for the listing of qualifications obtained in compliance with Rhine regulations. This page may only be filled in by a competent Rhine authority and the qualification listed on this page is the only qualification valid on the Rhine. To list the qualification in compliance with Rhine regulations, the competent Rhine authority only takes account of the number of years of experience the boatman has accumulated. It does not recognise the qualifications obtained through training and education outside the CCNR Member States.

2) The accession to the multilateral agreement is based on an individual request of a country, with potential necessary adjustments in the system of the requesting party. In addition, as indicated under paragraph 1), for workers from non-CCNR member states, it remains necessary to ask individually for the recognition of their qualification. There is no automatic recognition.

3) Regarding the provisions for the mutual recognition of SRBs, there is similar legal uncertainty and similar difficulties to adapt the system to evolution in the sector as for the bilateral agreement for the recognition of boatmasters' certificates.

At EU level, the general **Directive 2005/36/EC** on the recognition of professional qualifications is applicable to all EU State nationals[70] wishing to practice a regulated profession on a regular basis (establishment) or on a temporary basis (provision of services), in an EU Member State other than that in which they obtained their professional qualifications. IWT professionals do not fall under the system of automatic recognition foreseen for some specific professions but under the general system. This implies that each worker that wishes to have his or her professional qualifications recognised needs to introduce an individual request. Moreover, compensation measures could possibly be imposed by the host Member State to the professional wishing to exercise a regulated profession there, if the professional's qualifications are substantially different from those required in the EU Member State in question. The compensation measures may differ from one state to another, depending on the professional qualifications required in each state. With regard to the temporary provision of services, in most cases the qualifications do not have to be approved before the provision of service and only a prior declaration to the competent authority of the host country may be required. However, if the profession involves a potential risk to safety, as could be argued for IWT transport, the host States may verify the qualifications prior to the first provision of services. In this case, it is possible that each host country imposes different compensation measures on the IWT professional. Overall, it seems that the application of the general system under Directive 2005/36/EC is too burdensome, not streamlined and **open to different requirements** by each State concerned in a largely cross-border industry such as IWT. That the general directive is currently under-used in that given field seems to provide further evidence of this.

The recognition systems are not sufficiently based on proven competences

In the context of the recognition systems as described above, many potential candidates have difficulties in valorising their qualifications when working across borders as IWT administrations are reluctant to recognise qualifications obtained elsewhere in the EU.

According to an ETF representative[71], one of the aspects most frequently criticised regarding the existing systems for establishing minimum requirements concerns the qualifications of – candidate-boatmen. You can qualify as a **boatman** just by accumulating three years of sailing time. However there is no requirement for any training content in those three years, no log of the work carried out and **no examination** at the end.

In the absence of competence-based standards, the process of **mutually recognising training** programmes **is difficult** as there are substantial differences in EU Member States' training requirements, both in terms of the share of theoretical and practical training, and the duration of the training programme. The complexity of putting in place such a recognition process was experienced by the CCNR with the education institute of Decin[72]. Non-CCNR countries, in particular those with training and education institutes, underlined on several occasions in CEG meetings how problematic the absence of such recognition is for the mobility of their workers and for the attractiveness of the profession.

Workers are facing downgrading as a result

The lack of harmonisation represents an obstacle to labour mobility because it results in some workers being granted a lower function on the Rhine than in their country of origin and thus a lower salary. The external study[73] estimated that **around 13% of all operational workers**, are **already now directly affected by such 'downgrading'**. The main types of crew members concerned are helmsmen downgraded to boatmen, or able boatmen downgraded to boatmen. Reasons for downgrading crew members include the **diverging approaches concerning** the functions acquired through professional **experience only**[74], differences in the requirements regarding professional **experience after completing a training course**[75] **and the fact that education or training is not recognized** by the CCNR. 20% of boatmen are downgraded to deckhands because of this latter reason whereas only 0.6% of their counterparts in CCNR countries experiences similar situation.[76]

As explained under 3.3.1.1 for boatmasters, the fact that the reference point for granting IWT qualifications is sailing time as opposed to the level of competence does not allow a level playing field. The figures mentioned in the previous paragraph only reflect the number of operational workers that have actually suffered from downgrading. **Much more workers would face such downgrading if they would decide to become mobile.** These **difficulties therefore also have a** substantial **deterrent effect on mobility.** Close to 40% of all operational workers work on the interconnected IWT network outside of the Rhine corridor and could therefore potentially be concerned.

Finally, as also pointed out under 3.3.1.1 for boatmasters, again because the basis for granting IWT qualifications is sailing time rather than competence, **early competencies obtained outside the IWT sector are only taken into accoun**t **to a small extent**. The RNP and most EU countries take into account experience from the maritime sector for the qualification of boatman but still require one year of inland navigation experience[77].

The external study estimated that the number of workers from the maritime sector switching careers to IWT per year is very low.[78] The amount of workers willing to change their career from maritime to IWT is obviously higher, as the existing requirements are regarded as a mobility barrier. Some stakeholders have repeatedly pointed out that persons from outside the waterborne sector should also be given the possibility of becoming a qualified boatman in a shorter period. In the online public consultation, 43% of respondents considered that

difficulties with recognising relevant professional qualifications of workers from outside the sector was 'relevant' or 'very relevant' to the problem of restricted labour mobility.

Specific difficulties with Service Record Books as a tool for recognition and enforcement

SRBs are a source of recognition and enforcement problems due to their content and format.

The difficulty of the recognition of information contained in the SRBs and, in particular, the way navigation time and education are valued has already been addressed under the previous section. Furthermore, in the **absence of a coordinated or central registration system** it is possible for one person to be in possession of several SRBs. As a result, in some cases, entries in the SRBs are regarded as not fully trustworthy. The fact that it is easy to impede verification makes efficient or effective enforcement difficult. Finally and in close connection, it is also considered that the present **paper format** of SRBs is largely outdated and generates administrative burdens for both the authorities in charge of verification and for the crew members. With no secure mechanism for registering data, manipulation of SRBs will remain easy. It is clear for all stakeholders however that modernisation of SRBs is needed to alleviate administrative burden and improve mobility. Such a development is also necessary as regular abuses create unfair competition between those that play by the rules and those that do not, negatively affecting working conditions, attractiveness of the profession and safety. As mentioned under section 5.1, the decision to transition to an electronic version of these documents has been postponed and therefore the measure has been discarded in this IAR. The issues of harmonisation of SRBs content and registration remain however part of this IAR as first steps to tackle the problem.

3.3.2. Problem driver 2: Knowledge of Specific Situations (KSSs) may create unnecessary difficulties for boatmasters operating on certain river stretches

Member States may require boatmasters to obtain a certificate that attests their knowledge of the local situation in order to navigate on certain river stretches in Europe [79]. An overview of EU inland waterways where Knowledge of the Specific Situations (KSSs) is required and the procedures to obtain the relevant KSS certificate are presented in Annex 7. On the Rhine, for instance, KSS is required on the German sector between Iffezheim and Spijksche Veer (more than 500 km). In cases where boatmasters do not possess the relevant KSS-certificate, pilots need to be hired to navigate the stretch.

The external study concluded that 28% of total IWT performance in Europe is subject to KSS.[80] They estimated the costs of KSS for the IWT sector (considered as the total costs of hiring pilotage services for this purpose) at around €8 million in 2011[81]. The Rhine, Seine and Danube are the main contributors.[82] Mecklenburg-Vorpommern, Normandy, Île-de-France and Croatia are most affected in terms of extra percentage of transport costs; up to a maximum of 10% of the total transport costs.

KSSs are intended to increase safety in inland navigation. At the same time, the implementation of KSS regimes inevitably affects labour mobility. A boatmaster who wishes to acquire KSS has to make the required journeys at a lower function and then generally has to pass an examination before the competent authority. Alternatively, there are pilotage costs.

Although there can be no trade-off between labour mobility and safety - a high level of safety must prevail - there are two specific sub-problems related to KSSs which negatively affect labour mobility. Alternative approaches could offer similar levels of safety whilst removing unnecessary barriers to mobility:

1. No clear criteria for the definition of KSS: Under Directive 96/50/EC, Member States can set KSSs and unilaterally change them subject only to a non-binding consultation with the Commission. The absence of clear criteria for defining KSSs leads to a lack of transparency

and legal uncertainty regarding the introduction and modification of KSSs. It may also have resulted in too many KSSs, which negatively impacts labour mobility. In the online public consultation, when asked whether KSSs in force in Member States are justified in view of the criteria considered relevant by the CEG (hydro morphological characteristics, absence of marking systems and local traffic regulations), 50% of respondents declared that KSSs are not justified and 32% judged them as only partially justified. Moreover, the fact that the evolution of River Information Services (RIS) are not taken into account in this context is confirmed by responses to the public consultation. 70% are of the opinion that the information provided by RIS could 'always' or 'sometimes' replace the need for KSSs.

2. Examination requirements to obtain a KSS certificate:

The application of the KSS regime under Directive 96/50/EC has also resulted in differing practices regarding requirements for proving knowledge of a specific situation (see Annex 7). Furthermore, the exams for KSS may only be taken in the local country or, in the case of the Danube and Rhine, any Danube Commission or CCNR member country, which requires large travel distances. Examination is often conducted in the local language, which is a further difficulty to passing the KSS examination if language skills are lacking. The external study[83] concluded that taking into account transport costs, working time lost travelling to the exam location, language course costs and KSS exam costs, it is estimated that a worker would lose in certain cases, such as Romania and Bulgaria, up to 57-66% of their monthly salary.

1.2. Attempts by the sector to tackle the problems

To facilitate mobility, the CCNR has recognized boatmasters' certificates issued by other EU countries via **bilateral** agreements since 2008[84]. The CCNR has also signed a **multilateral** Administrative Arrangement[85] which allowed the signatories to recognize the Service Record Books issued by their respective competent authorities. The mechanisms for mutual recognition set up by the CCNR have however several **inherent** limitations (see 3.3.1.2). They were **seen from the beginning by the stakeholders as a transitional step towards a new EU initiative** and harmonized standards at EU level including the Rhine**.** The objective and composition of the CEG set up in 2012 as well as the constant fruitful cooperation of its members (see 2.3) confirms that view.

In 2013, the **EU and CCNR signed an Administrative Arrangement**[86], which further endorses that approach, as presented in the box below.

> The purpose of the Arrangement is to increase synergies and make action on both sides more complementary and mutually reinforcing. One of the two priorities for cooperation is the modernisation of professional qualifications of IWT workers and therefore the contribution of the CCNR to the preparation of new initiatives that will result in the modernisation of the legal framework currently outlined under Directive 96/50/EC.

This cooperation is **part of a broader approach under which uniform and high level technical standards for IWT will be adopted** by a committee (called 'CESNI')[87] composed of EU IWT stakeholders and consecutively integrated both into the EU legal framework and Rhine regulations. The Commission proposal[88] for technical requirements for IWT vessels, currently discussed by the EU co-legislators, already builds on common CCNR and EU standards. **The European Parliament in its first reading strongly supported the use of CESNI and the General Approach reached on 11 June 2015 in the Council makes reference to such future CESNI standards.** For the sake of coherence, a similar approach should apply to professional qualifications standards as the **evolution of competencies has to go hand in hand with the on-going evolution of technical requirements for vessels**.

In the online public consultation, stakeholders were also asked to assess the CCNR system of recognition agreements. **71% of the respondents stated that mobility barriers for boatmasters from non-Rhine EU Member States operating on the Rhine have only been**

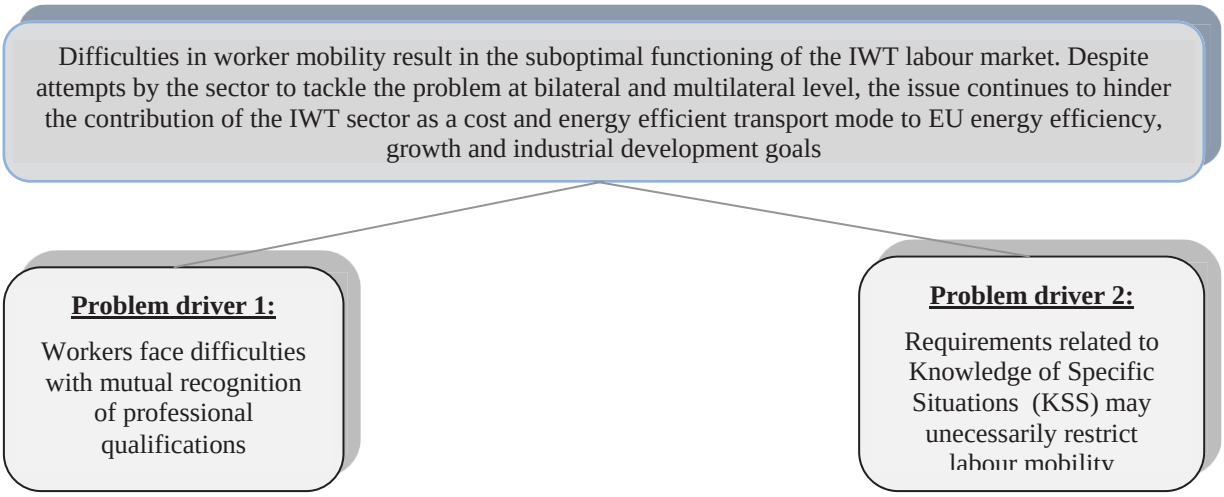
partially or inadequately addressed. **Regarding the recognition of SRBs,** 40% of respondents stated that this system only partially serves its purpose, 21% considered that it does not serve its purpose, and **only 13% considered that it serves its purpose fully.**

The **social partners are also of the opinion that action is now to be taken by the EU**. They encourage the Joint EC and CCNR's initiative to establish a legal framework regarding training and certification for the European IWT sector.[89] They have expressed the need for a modern and flexible regulatory framework, which will allow the development of safety together with fair and competence-based access to the profession. EU intervention is needed as the goal is qualified as 'ambitious', and the **process 'complex'**, requiring the **participation of all stakeholders** (regulatory actors, training institutes,…).

The European network of nautical schools (EDINNA), in close consultation with other stakeholders, has been working on the elaboration of Standards for Training and Certification in Inland Navigation (STCIN)[90] in order to reach a level playing field in the IWT education and training sector. At the current stage, STCIN are considered as recommendations for common standards and could be used by EDINNA members to evaluate their situation with regards to compliance with STCIN. However EU legislative action by the EU is seen as necessary in order to effectively achieve harmonised education standards through the implementation of STCIN, by rewarding compliance with standards with mutual recognition and facilitation of certification.

1.3. Summary of the main problem and its underlying drivers

Figure 5: The main problem and its underlying drivers



1.4. Who is affected by the problem?

The main affected parties are boatmasters, other crew members, workers from outside the IWT sector, ship owners, barge operators, Member States regulators and enforcement bodies, river commissions, UNECE, education and training institutes, industry using IWT and freight forwarders. A description of these parties and their key interests are described in Annex 8.

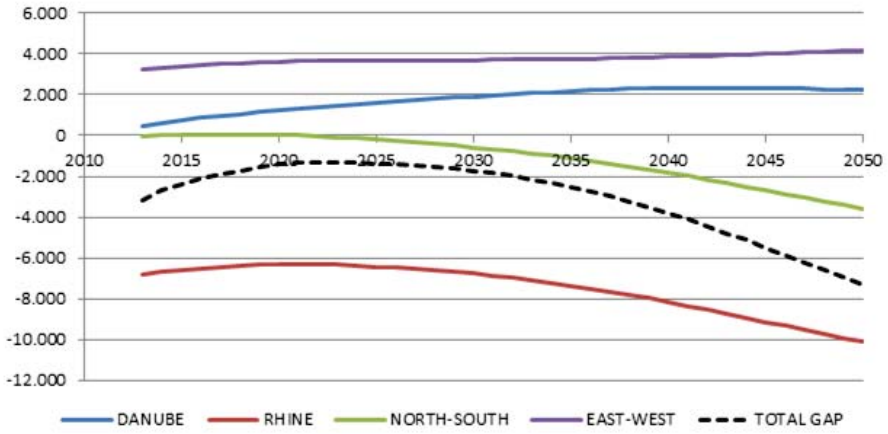
3.7. How would the problem evolve, all things being equal (baseline scenario)

According to the baseline market outlook for inland waterway transport, there will be an increasing demand for IWT services, in particular in container transport. IWT performance is therefore expected to rise[91]. However, it must also be taken into account that other modes of transport will also show an increase in their performance.[92] In order to reach modal share growth for IWT compared to road and rail, additional efforts are needed.

Due to increasing demand for transport in the future, the IWT labour force will need to grow. However, the available labour force is expected to decrease in the long term due to the ageing workforce[93] and because young people face difficulties to enter the profession. This results in a gap between the required and available amount of mobile workers.

As shown in figure 6 and further elaborated in Annex 2[94], **regional differences in the demand and supply of workers between corridors are expected to increase** in the long-term. On the Danube corridor and the East-West corridor, by 2050 there will be a surplus of about 2,500 and 4,000 workers respectively. The Rhine corridor however will face a shortage of about 10,000 workers. On the North-South corridor, the situation will be balanced until 2020 and thereafter a shortage of labour will start too, gradually increasing to a shortage of about 3,600 workers by 2050. Figure 6 demonstrates that gaps between supply and demand develop slowly over decades. In the longer term, gaps between supply and demand will however become more pronounced, especially on the Rhine corridor and regional differences will further increase[95]. Only in the short term, the so-called 'hidden reserve', not taken into account in figure 6, may to some extent cushion the shortages.

Figure 6 Evolution of the gap between supply and demand of workers in IWT per corridor (2013-2050)



Source: Panteia (2014)

It is likely that the **obstacles** to mutual **recognition** of professional qualifications of boatmasters and operational crew will **remain**. This is because EU Member States, aside from Croatia and potential new Member States (e.g. Serbia), will stay outside of the existing CCNR system of mutual recognition, both for boatmasters and operational workers, due to the unfavourable balance between the need to adapt national regulations unilaterally to the Rhine system which is not offset by the economic interest in obtaining recognition.

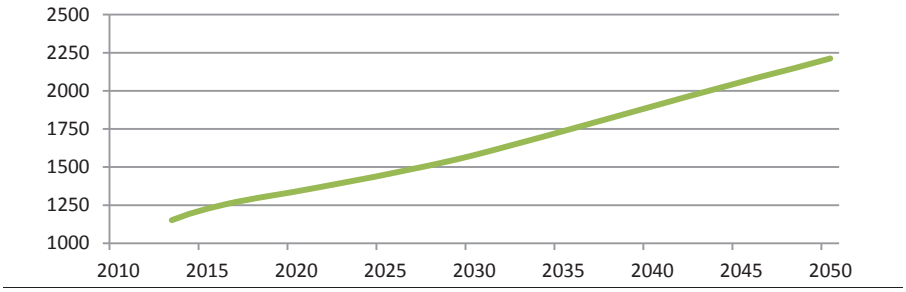
For boatmasters, the difficulties in terms of recognition of qualification as outlined under 3.2.1.1. are expected to remain unchanged under the baseline scenario. The recent Council Directive implementing the European Agreement concerning certain aspects of the organisation of working time in IWT[96], which entitles navigation personnel to a free annual health check, is not expected to alter the baseline scenario with respect to the frequency of medical check-up for boatmasters as this agreement is only applicable to employees and a very large proportion of boatmasters is self-employed.

For operational workers, recent efforts have led to the conclusion of bilateral administrative arrangements for the recognition of the professional qualification of boatman acquired by training delivered by one institute in Romania and another one in the Czech Republic. The process is currently intended to be limited to these two education institutes. It is nevertheless plausible that if it were decided that no action would be taken at EU level, other bilateral agreements could be signed in the long-term for a limited number of education institutes of countries that signed the SRB multilateral agreement. Mobility of a limited number of

operational workers from these countries to the Rhine would be facilitated as a consequence. In the absence of harmonisation of professional training objectives at EU level, it is nevertheless likely that the number of education and training institutes that have their education standards considered to be equivalent to those of Rhine countries will remain limited. Globally, both for boatmasters and for operational crew, it is unlikely that recognition would be eased substantially under the baseline scenario, as it would continue to be based on experience requirements rather than on competence-based requirements. As such, the related difficulties with mutual recognition of professional qualifications as identified in section 3.2.1 would continue to exist.

As a result of the increased transport demand and the 'hidden reserve' navigating in order to bridge the gaps between labour demand and supply, the external study estimated[97] that the amount of accidents increases from around 1,200 accidents in 2014 up to 1,600 accidents in 2030 and 2,200 accidents in 2050, as presented in Figure 7 below.

Figure 7 Development of the amount of accidents per year (2013-2050)



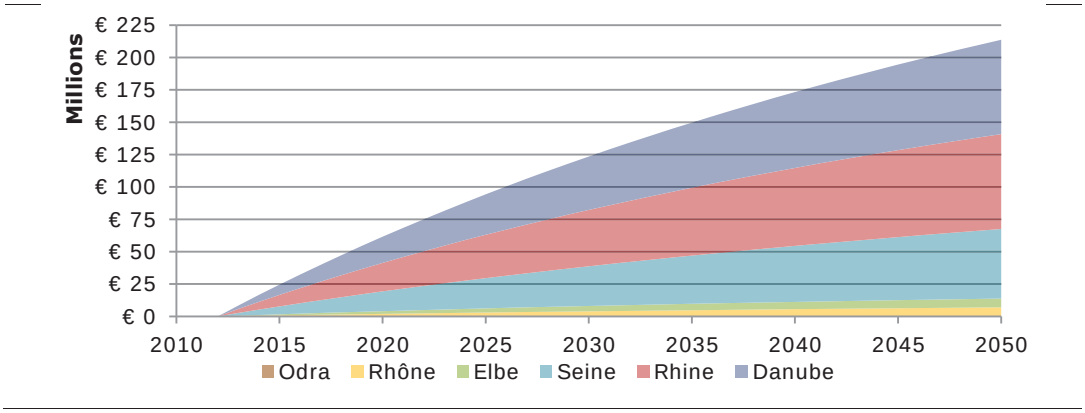
Source: Panteia (2014), based upon the Problem Definition (Panteia, 2014) and NEA et al. (2011)

Furthermore, the **legal framework** governing IWT qualifications will **remain fragmented**, including a specific system for the Rhine managed by the Rhine authorities falling outside the scope of the EU legislative framework. The recognition of qualifications for operational workers through Directive 2005/36/EC is not expected to increase as it does not offer the appropriate response to regular cross-borders activities, as mentioned in section 3.3.1.2. Under the CCNR administrative arrangements, the inherent limitations outlined under section 3.2.1 will remain.

The 2013 Administrative Arrangement between the EU and the CCNR aimed to work on common standards between the EU and the CCNR and the on-going work on common Standards for Training and Certification in Inland Navigation (STCIN) would in itself not be able to remove the obstacles to mutual recognition of professional qualifications. The Arrangement and STCIN work were set up with the goal of incorporating the resulting work into an EU legal framework. Without such a framework, the resulting work would not have the legal authority to ensure mutual recognition of professional qualifications.

As far as **KSS** are concerned, based upon forecasts of future tonnage transported in IWT[98], the external study[99] for the assessment of impacts highlighted that the tonnage affected by KSS is expected to increase[100]. For 2011, around 23 million tonnes were transported on waterways affected by KSS. This figure is expected to increase to 30 million tonnes in 2030 and up to 42 million tonnes in 2050. As the volumes of cargo transport subject to KSS will double in the period 2011–2050, the Net Present Value (NPV) of costs due to KSS increases rapidly as well. In 2030, the sector will have paid around € 125 million for pilotage and € 215 million in 2050. See Figure 8 for a breakdown of the costs per river basin[101].

Figure 8 Accumulated Net Present Value of Costs due to KSS per river basin and total, base year 2013



Source: Panteia (2014)

3.8. Does the EU have the right to act?

3.8.1. Legal basis

The general competence for this initiative derives from the aim to complete the internal market as stipulated under Title I 'Internal Market' in Article 26 of the Treaty on the Functioning of the European Union. It is also in line with EU competence under Title VI 'Transport' of the Treaty on the Functioning of the European Union (in particular Article 91). The applicability of Title VI to transport by inland waterway is stipulated in Article 100.

3.8.2. Subsidiarity

The necessity of an EU initiative aiming at the harmonisation and mutual recognition of professional qualifications is justified because the identified problems cannot be sufficiently addressed by Members States acting alone. The activity of inland navigation and all related aspects of transporting goods over the IWT network are generally transnational. Whereas Member States could enact national transport rules, they cannot do so for cross-border transport. Moreover, the introduction of different national legislation in each Member State undermines the functioning of the internal market for goods and workers. The completion of the Trans-European Transport Network would be jeopardised if barriers for its efficient use would not be addressed. Differences in legal regimes for professional qualifications in IWT throughout the EU cannot be entirely solved by the Member States individually, neither in the framework of international conventions, nor by the industry alone. The existing frameworks do not provide sustainable solutions for labour mobility problems in the long term. This results in suboptimal functioning of the internal labour market and legal uncertainty. These problems exist for both boatmasters and operational workers. Therefore, extending European action to operational workers is justified. This initiative would also enlarge the area of EU intervention to the Rhine river basin located on EU territory. Therefore, the initiative does not only provide added value compared to national or River Commission level action but is also necessary to achieve a well-functioning internal market at the level of the EU and to ensure the full contribution of IWT to Europe's industrial development.

The opinions and demands expressed by Member States and other relevant stakeholders during the wide consultation process and at various expert meetings on the issues above – i.e. the extension of EU action to the Rhine river basin, to operational workers and to competence-based standards for examination of future boatmen and boatmasters, including via education and training - underpin the justification for EU action in relation to professional qualifications in the IWT sector.

4. OBJECTIVES

The general objective is to improve the functioning of the IWT labour market to help ensure the sector can play its role in contributing to EU energy efficiency, growth and industrial development goals.

The specific objective is to facilitate labour mobility in the IWT sector by ensuring that qualifications of skilled workers are aligned with the competencies needed on-board. This leads to the following operational objectives:

- Ensure mutual recognition of professional qualifications of workers
- Ensure that KSS requirements are proportionate to their safety goal and do not unnecessarily hamper labour mobility

In Annex 10 a visual overview is given of the objectives and the link to the identified problems. The objectives are in line with other main EU policy objectives, such as the internal market and free movement of workers. They contribute to four of President Juncker's priorities: 'a deeper and fairer internal market with a strengthened industrial base','energy union', 'a new boost for jobs, growth and investment' and 'a stronger global actor'.

5. POLICY OPTIONS

The stakeholder consultation, the expert meetings, independent research and the Commission's own analysis have allowed the Commission to identify different policy options. The following process was applied for establishing the policy options:

- Step 1: Identify policy measures addressing the problems (considered policy measures) and those which can be discarded after a preliminary assessment
- Step 2: Combine the considered policy measures into policy options and identify options which can be discarded

5.1. Step 1: Considered policy measures & mapping with problem drivers

Problem driver 1: Workers face difficulties with mutual recognition of professional qualifications

Measures		Description
Boatmasters		
1	Business as usual (BAU)	The professional qualifications recognition system is fragmented. Directive 2005/36/EC applies to all professions regulated in the host EU Member State unless there is another specific EU legislation regulating the recognition of professional qualifications for a given profession. Such legislation exists for boatmaster. However, it explicitly excludes the Rhine area. A mechanism for mutual recognition set up by the CCNR exists, but has inherent limitations (see 3.2.1.1. for more information). Requirements for obtaining national boatmasters' certificates/Rhine patents are primarily based on sailing time and not on competencies. Required navigation time is set at 4 years minimum. A reduction of sailing time of maximum 3 years under Directive 96/50/EC is granted to candidates that got a recognised diploma/training certificate and 2 years in practice under RNP[102]. Directive 96/50/EC and RNP do not require a practical examination. Navigation education institutes do not use minimum competence-based standards and are variable in terms of competencies taught and tested. Directive 96/50/EC foresees the possibility of an exemption from the set requirements for boatmasters operating exclusively on non-interconnected waterways. Boatmasters that fall under this category do not benefit from the mutual recognition enjoyed by those operating on the interconnected waterways.
2	EU wide competence-based minimum	Binding EU wide minimum requirements for the boatmaster certificate in relation to age, mental and physical fitness, professional experience, and examination of competence. The sub-components of this measure are:

	requirements for boatmasters' certificates tested through a theoretical and practical exams by an administrative authority + mutual recognition of boatmaster certificates	a. Minimum standards will be identical as for the Rhine patent and therefore the EU boatmaster certificate will also be valid on the Rhine. As in BAU, possibility of exemptions remain for boatmasters operating exclusively on non-interconnected waterways. b. For mental and physical fitness, 3 alternatives are envisaged: alignment with prescriptions of Directive 96/50/EC, with those of RNP or a new proposed frequency of examination[103]. c. Minimum requirements are based on competencies. Set of competencies required would cover the following areas: navigation, cargo handling and passenger transport, control of ship operation, engineering, maintenance, communication and safety). This will be based on the work already done for STCIN (managerial level). Navigation time will be set at a revised level of 1 year minimum. d. An administrative authority will test competencies through practical exam for candidates using the experience path (subcomponent d') [and also for those using the education path (subcomponent d") – only in case of option C2]. e. A modular system will be proposed which will allow for limited licences (e.g. for boats between 20-40m with a reduced list of required competencies and navigation time) or extended licences (e.g. large convoys of more than 6 barges with additional required competencies and specific navigation time).
3	EU wide minimum competence-based standards for examination of future boatmasters in education and training institutes necessary for mutual recognition of their diplomas and certificates	The EU adopts European competence-based minimum standards for examination of future boatmasters in education and training institutes (equivalent to those to be carried out by the administrative authority). The diplomas/certificates awarded by training and education institutes awarded in line with these minimum standards are mutually recognised throughout the EU. Such a recognition would exempt the candidate from taking an examination with the administrative authority covering the same competencies. This education path provides a direct access to the qualification of boatmaster.
Operational workers: all crew members below boatmaster rank		
4	Business as usual (BAU)	To date, no harmonised system for professional qualifications exists and this will remains so in the future. Regulations at national or River Commissions level refer primarily to experience rather than to competencies. Whereas practical exams are frequent under the education/training path, no exam is required under the experience path. The mechanism for mutual recognition of SRBs set up by the CCNR continues to exist, including its inherent limitations. If a given profession is regulated in the host Member State, Directive 2005/36/EC applies (see for more info 3.2.1.2), but very few crew member apply for qualification under this system.
5	Extension of the CCNR system of multilateral agreement	The existing administrative arrangement would be extended to cover the mutual recognition of qualifications of all crew members based upon harmonisation of minimum requirements for age, fitness, experience and mutual recognition of training courses and examination programmes. Limitation inherent to the form of the arrangement will remain though (cf.3.2.1).
6	Use of new instruments under directive 2005/36/EC on the recognition of professional qualifications[104]	Representative professional organisations at EU level as well as national professional organisations or competent authorities from at least one third of the Member States, may submit to the Commission proposals for common training principles (i.e. common training framework (CTF) and/or common training tests (CTT)) as introduced in Directive 2005/36/EC by its amending Directive 2013/55/EC. Common training principles provide a new way of automatic recognition, focusing on the standardisation of content, and training or test outcomes. If adopted by the Commission, Member States may be exempted from their application under certain conditions ('right of opting-out' mentioned under 2013/55/EC)[105]. In the Member States that have accepted them, CTF/CTT can co-exist with other training and qualification systems.
7	EU wide minimum requirements for harmonized	At EU level, the following crew qualifications will be part of the mutual recognition system: deckhand, apprentice, boatman, able boatman and helmsman. This will be made possible through harmonised definitions of qualifications and

	qualifications and mutual recognition for all operational staff	the introduction of related minimum requirements with regard to age, physical and mental fitness and professional experience. 'Minimum requirements' means that Member States are allowed to define higher requirements in their legislation but will have to recognize on their territory crew with qualifications in line with EU minimum requirements'. Member States are allowed to define additional qualifications in their national system but only those defined at EU level will fall under the mutual recognition system. Member States are also allowed to define fewer qualifications, but the intoduction of the qualification of boatman in national systems would however be mandatory, except for Member States not connected to the IWT waterways network who can decide to opt out.
8	EU wide competence-based minimum requirements tested through examination by an administrative authority for candidate-boatmen	On top of measure 7, for all boatmen (first stage of the crew hierarchy for which key skills are necessary, including as regards safety), the following sub-components of this measure are adopted: a. competence-based minimum requirements would be imposed. Set of competencies required would cover the following areas: navigation, cargo handling and passenger transport, control of ship operation, engineering, maintenance, communication and safety). This will be based on the work already done for STCIN (operational level). b. competencies will be tested by an administrative authority for candidate-boatmen using the experience path (subcomponent b') [and also for those using the education path (subcomponent b") – only in case of option C2]. Examination could take the form of a theoretical and/or a practical exam.
9	EU wide minimum competence-based standards for examination of future boatmen in education and training institutes necessary for mutual recognition of their diplomas and certificates	On top of measures 7 and 8, the EU adopts EU competence-based minimum standards for examination of future boatmen in education and training institutes (same as under measure 8). The diplomas/certificates awarded by training and education institutes in line with these minimum standards are mutually recognised throughout the EU. This education path provides a direct access to the qualification of boatman.
10	Harmonization of required information contained in SRBs and logbooks & mutual recognition	The required information in SRBs and logbooks – in relation to identification data, physical and mental fitness, professional qualifications and navigation time - is harmonised throughout the EU. These SRBs and logbooks, and information contained therein, are harmonised and mutually recognised throughout the EU. Proper registration of these documents must be ensured.
Workers from outside the IWT sector		
11	Business as usual (BAU)	For boatmasters: In both the RNP and Directive 96/50/EC, a reduction in required professional experience in lieu of experience on a seagoing vessel is included to obtain the Rhine patent or the boatmaster certificate respectively. The regulation is stringent as it means that potential career changers from sea to inland navigation often still need to gain two years of experience on-board an inland navigation vessel in a lower function unavoidably at reduced wages. For boatmasters, under Directive 96/50/EC, passing a practical exam can give acces to the boatmaster licence more quickly, but still requiring one year of inland navigation experience. The licence is however limited to vessels with similar charachteristics to those of the vessel on which the boatmaster took the test. For operational crew: the RNP and most countries in the EU take into account experience from the maritime sector for the qualification of boatman, but still require one year of inland navigation experience before obtaining the qualification. In most countries, there is no possibility for lateral entrants in general (i.e. incl.from other sectors) to enter the profession through specific programmes.
12	Mutual recognition of a third path of entry to the profession with practical exam that may be introduced by MS	12a) for obtaining a boatmaster certificate: practical exam based on an intensive training and testing programme including various types of vessels combined with minimum navigation time, will become a fully-fledged recognised alternative for accessing the profession at EU level. 12b) for obtaining the qualification of boatman: a practical exam combined with a minimum navigation time will become a recognised alternative path at EU level.

		For both levels, the same competencies as assessed in the education path shall be tested. Member States are not obliged to use the third path, but if they do, the crew shall have its qualifications recognised across the EU. Even if a Member State chooses not to put in place the third path, a reduction of the navigation time (to be defined but more favorable than in BAU) shall in any case be possible for those with maritime experience.

Problem driver 2: Requirements on KSS may unnecessarily restrict labour mobility

	Measures	Description
13	Business as usual (BAU)	Member States may impose a requirement to obtain a certificate that attests the boatmasters' knowledge of KSS (see 3.2.2). Requirements differ depending on the authority that issues the certificate. If the boatmaster has no such certificate, his vessel can still navigate on the specifc river section but a 'pilot' – a boatmaster with the appropriate KSS certificate has to be hired. The introduction of fairway information systems (FIS), including River Information Systems (RIS), have no impact on KSS requirements, which are not expected to evolve over time.
14	Commission recommendations on KSS	The Commission issues non-binding recommendations on criteria related to 1) the definition of KSS situations: checking the necessity of any given KSS (based on relevance criteria: hydro morphological characteristics, FIS and existence of local traffic regulations) and 2) the required knowledge and examination. The identification of river sections subject to KSS would remain under the responsibility of the Member State as under Directive 96/50/EC.
15	Binding EU criteria framing the use of KSS but leaving the main responsibility to MS	Before establishing requirements for KSS for a specific stretch of river, Member States shall submit a justification to the Commission, based on the pre-defined list of EU-wide relevance criteria and describing the specific risks inherent to the navigation of the stretch concerned. Justification shall also be given for the knowledge required to anticipate and alleviate such risks and the means chosen to demonstrate the KSS (experience and/or examination) shall be proportionate to the risks. Member States need to notify KSS and their requirements to the Commission, which will share this information with stakeholders and, the KSS – if accepted by the Commission – will be published in a register. All existing KSS stretches will be examined in accordance with this procedure.
16	All MS can organise exams and issue authorisation for all KSS in Europe	All MS are allowed to organise exams (through multiple choice questions, test on simulators and/or verification of required minimum number of journeys on the relevant stretch) and to issue attestation for all KSS in Europe based on the requirements set by the Member State where the KSS is located (cfr. Measure 15).

Discarded policy measures

Several policy measures have been discarded after a first preliminary assessment (see Annex 11 for underlying justifications): rules for navigational workers operating on recreational boats, the mandatory issuing and mutual recognition of certificates for all skilled crew members after examination (in particular able boatmen and helmsmen, in addition to the boatmen), the introduction of the electronic service record book and electronic logbook, harmonised/identical EU wide requirements for professional qualifications (as opposed to minimum requirements), centralised decision-making on KSS, and no exemption for crew operating exclusively on non-interconnected waterways.

Stakeholders' opinions on the retained measures

In the framework of the CEG meetings, stakeholders had not only the opportunities to express their opinion on most of the above measures but were also closely associated to their formulation. **Generally, stakeholders in CEG**, most often represented at expert level from Member State authorities, **are all supportive of measures 2, 3, 7, 8, 9, 10, 12, 15 and 16**. Some measures or some of their sub-elements are particularly strongly supported by certain stakeholders e.g. modular system for large convoys under measure 2 by Danube countries, new proposed frequency for medical check-up by experts from the Netherlands and France, measure 8 (in particular the requirements for exam for candidates using the experience path) by experts from ETF, measure 10 by AQUAPOL and experts from the Netherlands, measure

12 by experts from the Netherlands, measures 3 and 9 by Edinna and experts from non-CCNR countries having IWT education and training programmes (e.g. Czech Republic and Romania), measure 15 by experts from Austria. Experts from some non-interconnected countries (e.g. United Kingdom and Sweden) also expressed their agreement with measures imposing common standards, subject to understanding that the possibility of exemption for crew non-interconnected countries would subsist. Furthermore, some reservations have been expressed by one expert from EBU regarding measure 8 and by experts from France, Germany and the United Kingdom regarding measure 16.

5.2. Step 2: Combining the policy measures into policy options

To address the problem and its problem drivers in full, besides the business as usual scenario (option A), two policy options have been retained (option B and C), with option C subdivided into two suboptions:

- Policy option A: Baseline scenario
- Policy option B: Initiatives taken by the sector with support of the EU
- Policy option C: Recognition of professional qualifications based on minimum competence requirements for boatmen and boatmasters,
    - C1 *including examination standards for training and education institutes,*
    - C2: *excluding examination standards for training and education institutes.*

Each option is composed of a series of considered policy measures and addresses all the problem drivers. As such, all policy options constitute true policy alternatives. Alternative combinations of these policy measures are limited as the nature of the EU intervention is different (via legal act or not) and coherence of the new system is to be ensured (see also hereunder 'discarded options').

Under option A, no new EU action is proposed.

In option B, the emphasis is on initiative taken by the sector – with EU support – as regards mututal recognition and also a Commission Recommendation on KSS is proposed to ensure all problem drivers are addressed. The rationale behind this option is to examine the impact if the sector (Member States, River Commission, Social Partners) would address the labour mobility problems by themselves by exploiting to a maximum extent the existing organisational and legal frameworks.

Option C consists of a regulatory intervention for mutual recognition of professional qualifications for IWT workers at EU level, with minimum competence requirements for boatmen and boatmasters. It also introduces binding EU criteria framing the designation of KSS and allow Member States to organise exams and issue authorisation for all KSS in Europe, whilst leaving the responsibility for defining the criteria and exam content to Member States concerned by the river stretches for which KSS is required. This option has been introduced to analyse the effect of replacing the 24 years old EU legal framework by new legislation that builds upon the new governance model for inland waterway policy developed under the NAIADES II programme and that tackles the root causes of remaining barriers to labour mobility in the sector. Two variants have been introduced for Option C in order to examine the impact if the proposed legislative framework would not establish standards for training institutes:
Option C1 ensures the uptake of these competence based-standards through exams carried out both by administrative authorities and by education and training institutes, to prevent that candidates with a diploma from an education institute have to go again through a set of examinations to obtain the certification of their qualifications.

Option C2 consists of the uptake of competence based-standards only through a mandatory administrative examination.

The table below shows how considered policy measures are packaged into the various policy options.

POLICY MEASURES	*POLICY OPTIONS*			
	A	**B**	**C 1**	**C 2**
Boatmasters				
1. Business as usual	X	X		
2. Competence-based (c) EU wide minimum requirements (a + b) for boatmasters certificates tested through theoretical and practical exams (d) by an administrative authority for candidates accessing the profession through the experience path (d') [and for candidates using the education path (d") – only for option C2] + mutual recognition of boatmaster certificates			a, b, c, d'	a, b, c, d'+ d"
3. EU wide minimum competence-based standards for examination of future boatmasters in education and training institutes implying mutual recognition of their diplomas and certificates			X	
Operational workers				
4. Business as usual	X			
5. Extension of the CCNR system of multilateral agreement		X		
6. Use of new instruments under directive 2005/36/EC (CTT and CTF)		X [106]		
7. EU wide minimum requirements for harmonized qualifications and mutual recognition			X	X
8. EU wide competence-based (a) minimum requirements for candidate-boatmen tested through exam by an administrative authority for candidates accessing the profession through the experience path (b') [and those using the education path (b") – only for option C2].			a, b'	a, b' + b"
9. EU wide minimum competence-based standards for examination of candidate-boatmen in education and training institutes necessary for mutual recognition of their diplomas and certificates			X	
10.Harmonization of required information in SRBs/logbooks + mutual recognition			X	X
Workers from outside the sector				
11. Business as usual	X	X		
12. Mutual recognition of a third path with practical exam that may be introduced by MS			X	X
Knowledge of specific situations (KSS)				
13. Business as usual	X			
14. Commission Recommendation on KSS		X		
15. Binding EU criteria framing the use of KSS but leaving the main responsibility to MS			X	X
16. All MS can organise exams and issue authorisation for all KSS in Europe			X	X

Discarded policy options

For the sake of clarity and to take account of subsidiarity concerns, only a limited number of policy options have been retained. Other options have been examined thoroughly but have been discarded because they would have represented only minor variations of the retained policy options, because they would not consistently address all the problems identified or because they would not have been consistent with the principle of subsidiarity.

For example, the option to adopt **minimum standards identical to the Rhine standards or to those of the Directive 96/50/EC without a competence-based approach** was discarded from the outset as it would not tackle adequately the problem linked to the lack of proven competencies in the inland waterway sector, as described in section 3.3.1. (knowing that scope and level of minimum standards in legal instruments is different). Action towards a competence-based approach is also a necessary move towards a modern qualification policy and the standard approach to qualifications in the European labour market. In the last two

decades training and education systems in general have been moving away from the traditional focus on knowledge and experience towards more competence-based teaching and assessment, in particular in the field of transport. This reflects the desire to assess the knowledge and practical skills of candidates with differing abilities, cultural and linguistic backgrounds[107], with the objective of favouring mobility. This is also expected to better accommodate future trends in man-machine interface in the context of training and assessment. The approach is in the line of the Recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning[108]

Also, the possible option to introduce mutual recognition of competence-based professional qualifications **for boatmasters only**, in combination with only soft instruments for boatmen, has been discarded as it would not have been a coherent approach and because of the limited overall impact. There are synergies between the regulatory measures for operational crew and boatmasters, which would be lost if only boatmasters would be addressed. This is particularly the case for the competence-based system which should be seen as a global approach to crew qualifications. Not addressing operational crew through EU regulatory measures would result in a much lower global impact as only one third of the workers are boatmasters and many of them already enjoy mutual recognition of their qualifications through the existing legal frameworks.

A third example of discarded option is a 'fully harmonised competence-based legal framework for operational workers and boatmasters on the whole EU territory'. Adopting EU requirements for qualifications in a uniform manner (identical instead of minimum requirements), including for KSS, and extending the requirements to crew working on non-connected inland waterways has been discarded for reasons of subsidiarity and proportionality. As a last example, the option of stopping all current EU action in the field was discarded. EU action is needed because there are problems which need to be addressed as shown by this impact assessment. Stakeholders are asking for EU intervention and the Commission109 has already announced its intention to act under the NAIADES II framework.

Stakeholder support for the retained policy options

Stakeholders have been extensively consulted on the policy options on several occasions to ensure the largest possible outreach. The CEG has been intensively involved in the process of the formulation of the options. They are most supportive of option C and more specifically of option C1. There is strong support for a regulatory competence-based approach, including practical exams for boatmasters and exams for boatmen. They support EU criteria framing the use of KSS. The CEG is not in favour of option A and judges option A (in particular the CCNR administrative arrangements) as only a transitory step towards EU regulatory action (option C). In the online public consultation, the wider inland waterway stakeholder community was targeted. With regard to mutual recognition of professional qualifications, stakeholders do not favour keeping the CCNR scheme of bilateral/multilateral agreements as the main regulatory framework (option B): only slightly more than 10% of the respondents agree that this scheme fully serves its purpose of removing labour mobility barriers. It is seen as a transitory instrument as a suboptimal response to the substantial shortcomings of the current EU legal framework which has not been revised since 1996, pending further action at EU level. EU mandatory requirements for professional qualifications and training standards (option C1) receive support from around 90% of the respondents (who find the measure either “somewhat appropriate” or “very appropriate"). The introduction of KSS related measures also receive large support from the respondents. Section 5 of Annex 1 provides more detailed information (e.g. on support per stakeholder category).

2. ANALYSIS OF IMPACTS

Each policy option has been analysed in terms of its economic, environmental and social impact against the baseline scenario. Where possible, quantitative estimates are given. Because of the nature and diversity of the IWT sector and the lack of quantitative data, the calculations and assumptions needed to be aggregated and sometimes generalised. Thus, while the quantified estimates do indicate a trend-line, caution is needed in the interpretation of the figures. This is the reason why the quantitative estimates are often presented as being indicative or a means to illustrate the points made in the qualitative assessment. Under each section only measures are presented for which an impact has been identified or for which a specific explanation was considered useful. The impacts for option B and C (and when relevant making distinction between C1 and C2) are presented compared to the baseline scenario (option A).

6.1. Social impacts

2.1.1. Impact on labour mobility

A) Impact on labour mobility due to the measures on mutual recognition of professional qualifications

Option B

Boatmasters and workers entering the profession from outside the sector: **no effect** on labour mobility is expected as no specific measures are foreseen.

Operational workers: the introduction of CTT or CTF as proposed under amended Directive 2005/36/EC (measure 6) will have a positive impact on mobility. The impact however is expected to be rather small since CTT/CTF is a voluntary agreement on common standards for operational workers' qualifications and there is high uncertainty about the use of exemptions, which can be easily invoked by Member States. The adoption of a CTF/CTT in the IWT sector does not exclude maintaining parallel national training structures in the Member States. Training/examination schemes that are not elaborated according to CTF/CTT could remain valid (a) in the Member States opting-out or, (b) in the Member States adopting CTF/CTT. Workers who obtained their qualifications under these schemes would not be able to benefit from the mobility offered by CTF/CTT (in Member States that have adopted CTF/CTT), but could still exercise their profession in Member States by making an application under the general system of Directive 2005/36/EC which as explained in point 3.3.1.2 is rather burdensome in a cross-border industry such as IWT. In addition, CTF/CTT cannot address a number of supporting or organisational aspects that would need to be regulated for IWT professions in order to facilitate the recognition of qualifications e.g. the procedure for obtaining and checking SRBs. Finally, it is likely that the introduction of CTT or CTF would co-exist with the CCNR multilateral administrative agreement (measure 5), which would further fragment and complicate the framework for mutual recognition of qualifications. Alternatively or additionally to CTT/CTF, a CCNR multilateral administrative arrangement for the recognition of qualifications for crew members under boatmaster level (measure 5) could also have a positive mobility impact, though this is also expected to be minor as access would be limited to those that have signed the administrative arrangement for SRBs and the limitations inherent to the form of the arrangement as described under 3.3.1.2.will remain.

Option C

Boatmasters:

Option C is expected to significantly affect labour mobility in a positive way due to measures 2 and 3, in particular as regards the recognition of EU boatmasters' certificates on the Rhine.

Impact on labour mobility due to medical check-up frequency requirements: the impact will be limited, as the estimated difference in the yearly number of boatmasters entering and exiting the market resulting from changes in frequency (available workforce) is very small.[110]

Impact on labour mobility due to competence-based minimum requirements and mutual recognition of related boatmaster certificates:

As the existing EU Directives already ensure mutual recognition in EU Member States with the exception for the Rhine, the most substantial impacts due to mutual recognition of boatmasters' certificates is expected on the Rhine River, with **benefits for all Member States issuing EU boatmasters' certificates**.

- **6.6% of the total estimated boatmaster workforce**[111] and **around 15% of the number of boatmasters working on the Rhine corridor** could benefit from an automatic recognition of their qualification[112] if EU certificates are **recognized on the Rhine**. 65% of these boatmasters operate on interconnected IWT network (in particular from France and Croatia)[113] and the remaining 35% come from Member States that have no interconnected inland waterways but issue certificates in line with the requirements of Directive 96/50/EC (i.e from Sweden, Finland, Lithuania and Estonia).
- **All Member States concerned by the CCNR bilateral arrangements** would also enjoy mutual recognition benefits due to the elimination of the **limitations** inherent to the bilateral agreements as described under 3.3.1.1. In particular, the vast majority of their boatmasters would enjoy direct benefits as additional requirements would no longer be imposed on them[114]. This concerns boatmasters coming from Austria, Bulgaria, Hungary, Poland, Romania, Czech Republic, Slovakia, Belgium and the Netherlands.

It should be underlined that the mutual recognition is made possible because of a competence-based system is put in place through measure 2. The most significant example is the case of France as highlighted under 3.3.1.1. It is only because of the increased **confidence** generated by the shift from a common means (time)-based system of qualifications to a system based on objectives (competence) that the automatic mutual recognition is possible.

The competence-based approach produces an additional benefit with respect to labour mobility compared to the baseline scenario as **boatmasters will be active sooner** on the labour market (workers operating on the Rhine would only need one year of professional experience after they have graduated instead of the two years before). The impact of this measure could be slightly lower if some Member States decide to keep two years as minimum required navigation time.

Impact on labour mobility due to the introduction of a limited certificate for vessels between 20 and 40 metres: this measure will have some effect on new entrants to the sector as they will be able to become boatmasters more quickly as less navigation time would be required. The expected impact of this measure is limited however considering the estimated number of additional boatmasters that would apply for limited boatmaster certificates[115].

Impact on labour mobility due to the introduction of an extended certificate for large convoys: This measure will have a limited impact as it would only concern a very small number of crew yearly on the Danube corridor only (where these large convoys are found). For these workers the impact will be negative as they access boatmaster level less quickly than in the baseline scenario[116].

Labour mobility effect is broadly similar for suboptions C1 and C2 but is somewhat higher in case of C1 through the recognized recognized diplomas or certificates issued by education and training institutes (measure 3), which prevents that candidate-boatmasters with a recognised

diploma/training certificate (85% of the inflow[117]) would be required to take additional examinations with an administrative authority. Section 6.2.3. shows the main difference between suboptions C1 and C2, namely, a reduced administrative burden in option C1 due to the fact that candidate boatmasters with a recognised diploma/training certificate do not need to take additional exams with an administrative authority.

Operational workers:

Impact on labour mobility due to mutual recognition of EU harmonized qualifications and additional competence-based requirements for boatmen (measures 7, 8 and 9): due to mutual recognition of qualifications, positive impact is expected **for all Member States and on all rivers:**

- **All skilled workers from any Member States who might postpone or renounce working on the Rhine or on another river** in another Member State due to the fact that they have not reached yet the sailing time required for the qualification they have already been granted in their country of origin (as mentioned under section 3.3.1.2. close to 40% of all operational workers could potentially be concerned).
- Concretely, **around 13% of the crew below boatmaster level**[118]operating on the interconnected IWT network who are **currently** working on the Rhine **and are being downgraded** (as described under 3.3.1.2.) due to the absence of a qualification system harmonised at EU level. This may concern workers from both CCNR and non-CCNR countries. Although no estimates exist, this phenomenon also exists outside of the Rhine depending upon the national legislation.
- Boatmen from individual Member States like France that currently do not have the qualification of boatman in their system and would wish to have their competence recognised in another country.

In the same way as for boatmasters, it should be underlined that the mutual recognition of qualification at EU level is made possible because of a competence-based system is put in place through measure 8. It is only thanks to the increased confidence generated by a system based on objectives (competence) that experience (navigation time) becomes less central in the recognition process. As a result, the competence-based approach should generally allow **boatmen,** in particular those using the experience path, **to access the qualification sooner.**

Labour mobility effect is broadly similar for suboptions C1 and C2 but is somewhat higher in case of C1 through the recognized diplomas or certificates issued by education and training institutes (measure 9) which prevents that candidate-boatmen with a recognised diploma/training certificate would be required to take additional exams with an administrative authority.

Impact on labour mobility impact due to harmonised content of SRB/logbooks (measure 10): since almost all SRBs and logbooks on interconnected waterways are mutually recognised under BAU through the CCNR multilateral agreement, the impact of this measure on mobility should per se not be significant; it is mainly a supporting tool for the implementation of the other measures.

Workers entering the profession from outside the sector:

Option C introduces with measure 12 mutual recognition of a fully-fledged ‘third path’, an intensive training programme which includes a series of competence-based practical exams that allow lateral entrants to enter the IWT sector more quickly. The impact on cross-sector mobility is shown by the recent results of such programmes in the Netherlands where **demand** has **increased** since commencement of the programmes[119]. It should be even more significant if mutual recognition of the qualification is guaranteed by an EU legislative framework. The extent to which other Member States would integrate this 'third path' is

uncertain. The effect over the long-term is therefore difficult to quantify. However it is likely that **countries with training capacity and/or a workforce deficit would** put such a programme in place as the first experiences showed that it is a useful tool for increasing the attractiveness of the IWT sector for lateral entrants. Option C will therefore increase labour mobility possibilities for these workers: the 'third' path in place in some countries will be mutually recognized by all Member States. In the Member States where the 'third' path is not put in place, a positive but much smaller positive impact on the mobility of lateral entrants is expected. This would be due to a larger reduction of required navigation time for **maritime or fisheries** sector workers switching to IWT. This would be a consequence of the introduction of the mandatory exam as foreseen under measure 8. The external study estimated that aligning all EU IWT-interconnected countries with the reduction presently offered in Directive 96/50/EC by 2030 would benefit around 500 candidate-boatmasters originating from outside the sector and that furthermore, reducing the required navigation time by 3/4, instead of 2/3 as presently applied, could yield up to 250 additional lateral entrants at operational level.

The total effect as regards increased labour mobility on the supply-demand gap of workers: As described above, options B and C have both a positive impact on labour mobility, but to a varying extent. It is impossible however to estimate the exact impact on the worker supply-demand gap because the number of IWT workers that will ultimately take advantage of increased labour mobility possibility is unknown.

	B	C1	C2
Impact on labour mobility due to measures on mutual recognition of professional qualifications (all crew)	+	++	++
- Boatmasters	0	+	+
- Operational IWT sector workers	+	++	++
- Workers from outside the sector	0	+	+

B) Impact of the policy options on labour mobility due to KSS measures

Option B (measure 14) could result in increased labour mobility, as the Commission Recommendation on KSS may incentivise Member States to re-evaluate their rivers stretches which are subject to KSS. If judged no longer appropriate or necessary, Member States may remove these stretches from their KSS list or may consider decreasing their knowledge related requirements. As a result, there might be positive effects on labour mobility. However, as the Commission Recommendation would not be binding, the effects are uncertain and no estimates can be given. Moreover, no detailed assessments are currently available which would indicate which specific rivers or Member States would be more likely to take this measure up. Each Member State would be expected to make its own judgement.

Option C Measure 15 will oblige Member States to re-evaluate existing river stretches that are subject to KSS. Removing or adapting non-justified KSS requirements may have a positive impact on labour mobility. As the detailed effects of this measure are not known as long as the stretches have not been evaluated by the Member States in the context of a revised EU regulatory framework, its magnitude cannot be estimated. It is nevertheless expected that there will be a greater impact than under option B because of the mandatory evaluation and the requirement to justify the KSS. The Seine, Rhine and Danube are most affected by this measure. A second impact from option C may arise through measure 16 from the possibility of Member States organising exams and issuing authorisations for all KSS river stretches in Europe. Compared to the baseline scenario, taking the KSS exam in a worker's home country may sharply reduce the cost as a percentage of a worker's monthly salary. According to the external study,[120] estimations of exam costs would be reduced to maximum 5% of a worker's

monthly salary. At present, this percentage reaches 57% and 66% for workers from Romania and Bulgaria respectively. Although workers from all Member States would benefit from this measure, the greatest savings would be for Central and Eastern European countries. Reduced costs would increase labour mobility as a labour mobility barrier – attending a KSS exam in order to navigate on KSS stretches –, is lowered. In view of the estimated number of boatmasters per year that can't do KSS exams in their own country[121], the Elbe and the Seine are particularly concerned by this measure. The exact impact of option C will depend on the extent to which Member States make use of the possibility of organising KSS exams for stretches located in other Member States.

	B	C1	C2
Impact on labour mobility due to KSS measures	0^+	+	+

("0" refers to a neutral effect compared to the baseline scenario; "+" refers to the strength of a positive correlation; the small sign "$^+$" just above the main sign indicates an (additional) positive effect but of a lower magnitude than a "+").

2.1.2. Impact on access to the profession

Under the baseline scenario (option A) the profession is regulated in a different way at various levels, e.g. the UN ECE level, the European level, the level of River Commissions (CCNR level and administrative arrangements) and the national and regional levels. As described under section 3.3.1 this has led to difficulties with regard to mutual recognition of professional qualifications, thereby making access to the profession more difficult in certain countries. As both policy options B and C will have a positive impact on the conditions for mutual recognition of professional qualifications (see section 6.1.1.), these options will also to the same extent ease the access to the profession, both for workers having started their career in the IWT sector or for lateral entrants. The impact of option B will thus be smaller than for option C. Under option C, the benefits of the career prospects offered by the competence-based minimum requirements (see also section 6.1.4 on 'job attractiveness') for boatmen and boatmasters are expected to largely outweigh the difficulties that the necessary examination requirements could represent for a number of individual candidates (in particular boatmen using the experience-based path). The recognition of diplomas/training certificates and the associated exemption from exams taken with an administrative authority under suboption C1 represents significant additional benefits for access to the profession compared to C2. Overall the competence-based approach should not be perceived as imposing stricter requirements for the access to the profession as its expected impact on the inflow of new intrants is positive.

	B	C1	C2
Impact on access to the profession	0^+	++	+

2.1.3. Impact on safety in the IWT sector

A) Impact of the policy options on safety due to measures linked to mutual recognition of professional qualifications

Option B

Boatmasters and workers from outside the sector: no effect is expected as no specific measures are foreseen.

Operational workers: the impact on safety from the implementation of CTF/CTT, as proposed under amended Directive 2005/36/EC (measure 6), **would be positive** because the common minimum standards for operational workers' qualifications would refer to common standards that ensure a high degree of safety. The extent of the effect **however** is **unsure** (for the same reasons as those mentioned under section 6.1.1.). The impact of the extension of the CCNR mutual recognition system to operational workers (measure 5) would also be positive

but limited. The arrangement would be based on an alignment with CCNR standards that ensure that navigation safety levels are high. However, participation would be limited to those that already signed the administrative arrangement for SRBs and the inherent limits of the instrument, as described under 3.3.1.2., would remain. Moreover, the administrative arrangement cannot put in place a competence-based system with an organised and permanent quality system. For ensuring stability and sustainability of the system, a stronger legal framework is needed that establishes clear responsibilities of the Member States regarding verification and evaluation of assessment and certification methods.

Option C

Boatmasters (measure 2):

Impact on safety due to standards linked to the frequency of the medical check-up: As mentioned under section 5.2, three levels of standards on the frequency of the medical check-up are considered for application at EU level. The CCNR standards would be most stringent: as a result, more accidents will be avoided, thereby positively affecting safety. The new frequency proposing the lowest frequency of the medical check-ups, results in a negative impact on safety. Directive 96/50/EC standards score in between. If all costs and benefits are taken into consideration and considering proportionality, the new frequency (with savings in terms of administrative costs estimated at 13,2 million by 2050) can be considered as the most efficient level of minimum standards. Compared to the baseline scenario, according to the estimates of the external study, the new frequency could lead to a limited number of extra accidents, estimated at a maximum of 5 yearly, potentially leading to extra costs (NPV) up to 3.3 million by 2050.[122]

Impact on safety due to competence-based minimum requirements and mutual recognition: Positive effect on safety in terms of avoided accidents is expected thanks to the following elements:

- **The competence based approach** – in comparison to the baseline scenario – sets high standards. Increasing the coverage of competence required and making them up-to-date with technological development will have a positive effect on safety both in CCNR and non-CCNR countries.
- **The practical examination** as a prerequisite to becoming a boatmaster will ensure that every candidate has the required competencies. Under the baseline scenario, only a theoretical examination is imposed. This new practical examination will target the entire new boatmaster population. This should result in a yearly increasing safety effect in countries where such an exam was not required (e.g. the Netherlands, Germany, Slovakia, Czech Republic.) and particularly for the candidates using the experience path.
- **Increased mutual recognition** in itself will also slightly improve safety by increasing the size of the workforce and thereby ending (or at least **limiting**) the use of the "**hidden reserve**" which is more accident-prone as not active on a regular basis.

The external study has provided some indication of possible safety effects in monetary terms.[123] Results should only be seen as illustrative. A methodological remark has been included in Annex 12. Overall, according to the study, the NPV of the benefits of competence-based minimum requirements and mutual recognition as defined under measure 2, in terms of **accidents avoided per year is estimated at around €73 million for 2030 and € 183 million for 2050**.

Impact on safety due to limited certificates for vessels between 20 and 40 m: in order to obtain such a certificate, reduced navigation time would be required. Although it could be expected that less experienced boatmasters have a higher accident probability, option C includes a competence-based approach built on relevant competencies to be tested, including

a practical exam. In addition, accidents involving smaller ships on average cause less damage than larger ships and, under the baseline scenario, there is a small patent under the RNP that can be considered as an equivalent to the new EU limited certificate. As a result, it is concluded that the safety effect of this certificate is **insignificant**.

Impact on safety due to certificates for large convoys: A complementary boatmaster certificate for navigating on large convoys will have a **positive** impact on safety. It is difficult to quantify the safety effects of this measure as no data is available on the number of accidents in which large convoys are involved. However, public authorities responsible for the Danube (river commissions and Member States) have been asking with a single voice for an EU regulatory qualification framework including that aspect for safety reason. According to them the lack of specific competence/experience in navigating on large convoys is the cause of a significant number of accidents involving this type of vessels.

Operational workers:

Impact on safety due to EU harmonized qualifications for operational crew (measure 7) and additional competence-based requirements for boatmen (measure 8):
The **harmonised** qualifications with regard to age and fitness for all operational workers (measure 7) is expected to have an **insignificant** effect on safety as these EU standards are expected to be very similar to those applied under the baseline scenario. The possible reduction of minimum navigation time required is not considered to have a safety impact in view of the higher safety benefits of the competence-based approach.
The competence-based standards for **boatmen** tested through **examination** (measure 8) will in a significant way **positively** affect safety in terms of avoided accidents on a yearly basis **in both CCNR and non-CCNR countries**. This is because - compared to the baseline scenario – the competence-based approach introduces an examination of competencies as a prerequisite to becoming a boatman; competencies which are based on **high standards that are up-to-date with technological development.** In principle, a more significant impact is generally expected from the application of the measure to workers that acquire their qualifications through the experience-based path as they do not go through specific tests/training under the baseline scenario.

The external study has provided some indication of **possible safety effects** due the competence-based approach and mutual recognition at operational level.[124] The NPV of harmonised standards as foreseen under option C **for 2030 and 2050 amounts to around €4.2 million and €11.8 million respectively** in terms of work related accidents avoided. These results should only be seen as illustrative and a methodological remark has been included in Annex 12. It can nevertheless be noted that these estimates take into account only the impact for non-CCNR Member States whereas – as mentioned above – a positive impact is also expected for candidates from CCNR Member States.

Impact on safety due to harmonised content of SRB and logbooks (measure 10): the effect on safety from the harmonisation of the models can be considered small but not insignificant.

The SRB is mainly a support for the other measures and the logbook a means to check the information inserted in the SRB. The single SRB format and improved registering of related information will contribute to improved compliance and have a positive effect on safety.

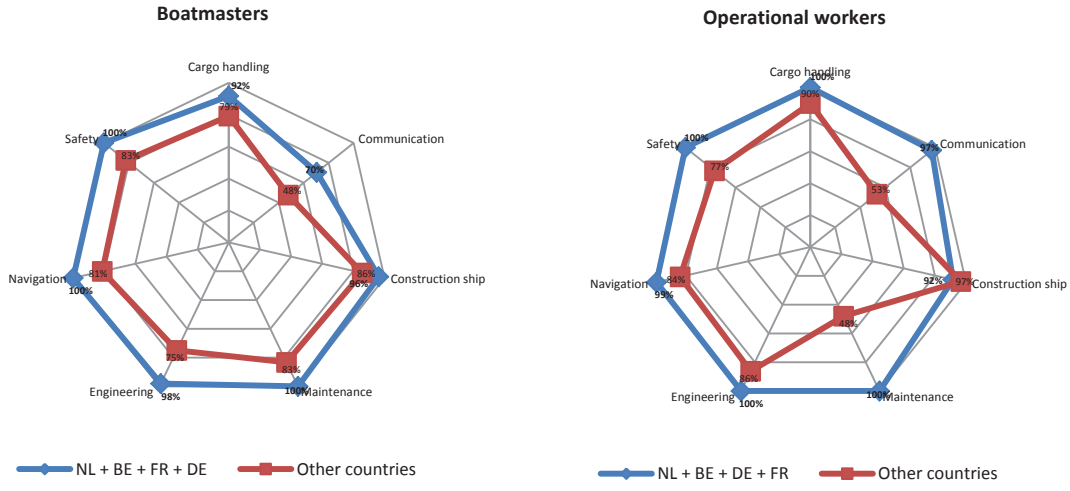
Workers entering the profession from outside the sector:

A **positive impact** on safety is expected from the new possibilities for external workers to enter the IWT labour market through the recognised **third path consisting of an intensive training and testing programme** (measure 12). This results from the additional guarantees the required competencies are obtained, in comparison with the experience path (based on number of years of navigation) as defined under the baseline scenario. The impact would

remain modest however in view of the size of the population targeted (i.e. a maximum 15% of new entrants[125] in countries having put in place such a system).

All the benefits in terms of safety outlined for option C are valid both for suboptions **C1 and C2** as all candidates will have to go through examination in accordance with the same high level and up-to-date standards to obtain their qualification. Under suboption C1, a higher impact can be expected in terms of less work-related accidents involving boatmen from non-CCNR countries as the standards used in education will improve more significantly for these countries as shown in the comparative analysis of curricula of navigation education institutes of figure 9 below. The analysis has been elaborated by the external study based on the work of the PLATINA I project[126]. The analysis presented in figure 9 also indicates that not only non-CCNR countries can benefit from competence-based standards in education, but also CCNR countries, in particular for the level of boatmaster.

Figure 9 Percentage of relevant competences mentioned in STCIN covered by boatmasters and operational workers curricula in two groups of Member States



Source: Panteia (2014), based on data from PLATINA 1 D3.8

	B	C1	C2
Impact on safety due to measures on mutual recognition of professional qualifications (all crew)	0^{+}	++	++
- Boatmasters	0	+++	+++
- Other IWT sector operational workers	+	++	++
- Workers from outside the sector	0	+	+

B) <u>Impact of the policy options on safety due to KSS measures</u>

None of the KSS related measures of options B and C are expected to impact safety as all measures aim at ensuring that KSS requirements are proportionate to their safety goals and do not unnecessarily hamper labour mobility. The intention is only to target disproportionate KSS requirements. Any changes would therefore not affect the safety levels.

	B	C1	C2
Impact on safety due to KSS requirements	0	0	0

2.1.4. Impact on job quality/attractiveness

Regardless of the policy option, most of the measures are aimed at reducing labour market barriers in the EU. The job quality and attractiveness of IWT careers in the sector will

improve. As a result of measures which have positive impact on safety, job quality and attractiveness will also improve as the risk of accidents decreases.

The impact of option C: Measures that introduce EU wide minimum competence-based standards for boatmen and boatmasters also increase job quality as they positively influence work autonomy and participation as well as workers' health. The external study used indicators[127] for the various aspects of job quality/attractiveness and assessed which aspects were affected by each measure. Table 1 shows the overall score for each of the measures included in Option C, taking into account the population size of the targeted group. Measures related to the mutual recognition of competence-based minimum requirements, both for boatmasters and boatmen have the highest (positive) impact on job quality and attractiveness.

Table 1: Job Quality scores per measure

	Job quality / attractiveness indicators							
Measures	*Work autonomy*	*Health implications*	*Risks*	*Social working environment*	*Meaning fulness*	*Advancement opportunities*	*Formal training*	*Total score*
Boatmaster-certificates for vessels between 20 and 40 m	+				+	+		+
Boatmaster-certificates for large convoys			+			-		-
Boatmaster-new frequency of medical checks		-	+					0^{+}
Boatmaster – mutual recognition of competence-based minimum requirements, tested through a practical exam by an administrative authority	+		+	+	+	++		++
Operational Crew - mutual recognition of harmonized qualifications	+		+	+		+		++
Boatman - mutual recognition of competence-based minimum requirements, tested through examination by an administrative authority	+		+	+	+	++		++
Boatmasters and boatmen-Competence-based standards for examination in education and training institutes implying mutual recognition of their diplomas and certificates (**option C1 only**)		+	+		+	+	+	++
Lateral entrants - recognition of practical exams programs	+			+	+	+		+
Harmonised paper SRB and logbooks + mutual recognition					+			0^{+}
Criteria for KSS and improved access to KSS-exam	+				+	+		+

Source : Panteia (2014), adjusted by the Commission. Total score takes into account the size of the impact and of the targeted group.

Table 1 shows that suboption C1 with its recognition of diplomas and training certificates brings additional benefits compared to option C2 in terms of attractiveness. As already explained previously this is due to the exemption from taking additional examinations with an administrative authority for candidates coming from education institutes.

A number of measures under option C will affect the speed of the career path of workers: some measures will speed up the career path, whereas others will slow it down. The career path is expected to influence the received wage in a given year, thereby affecting job attractiveness from the point of view of the workers:

- *The boatmaster certificate for large convoys*: one extra year of experience in the function of helmsman is needed before becoming a boatmaster on large pusher vessels. During that year, the wage level could be lower. The external study[128] estimated the NPV of the total accumulated salary difference for the EU workers at around € -0.1 million in 2030 and € -0.2 million in 2050.
- *The introduction of the competence-based approach for boatmasters*: there is a positive effect in terms of salaries paid to workers that now work on the Rhine, as it will only take one year before they become boatmaster, against two under the baseline scenario. The external study[129] estimated the NPV at around € 21.0 million by 2030 and € 31.6 million in 2050.

- *The mutual recognition of harmonised competence-based qualifications for operational crew members*: as under BAU 6.6% of the operational workers do not have their qualifications recognised, resulting in a lower function and a lower salary, the effects of mutual recognition of their qualifications can also be calculated in terms of wage gains. The external study[130] estimated the NPV benefits up to around € 10.4 million in 2030 and € 15.9 million in 2050.
Overall, option C is expected to lead to faster career paths compared to option B and the baseline option, thereby positively influencing job attractiveness.

The benefits of option B for job quality and attractiveness will be smaller than those under option C if CTT/CTF are put in place, because mobility benefits will be smaller. Also, if a CCNR multilateral agreement is signed for the mutual recognition of qualifications, the impact on attractiveness would be smaller than under option C, because existing CCNR standards are likely to remain predominant over a potential competence-based approach. Moreover, as previously mentioned, the degree of uncertainty of the effect is rather high.

	B	C1	C2
Impact on job quality /attractiveness	0^{+}	++	+

2.1.5. Impact on labour costs

In the baseline scenario, several regions face a supply/demand gap of workers. In line with general wage trends in these countries, differences also exist in IWT wages. In regions with labour shortages, e.g. in the Rhine area, this might result in labour cost increases. However, the way wages will react to this supply/demand gap in the baseline scenario cannot be estimated, as a lot will depend on the rigidity of wages in the various countries and on other external factors. As the EU as a whole and certain regions face shortages of workers, it is however likely that no decrease in labour cost will occur in regions with labour surpluses.

Policy options B and C will increase labour mobility and attractiveness and could to some extent reduce the supply/demand gap of workers. Labour shortages would therefore decrease in the respective regions and could as a result diminish the upward pressure on IWT labour costs, compared to the baseline scenario.

The effect of possible wage gains by individual workers resulting from higher classification and fasters career paths, as described in section 6.1.4, on labour costs for employers, is limited. This is because an employer will not have to face higher labour costs for the same set of required qualifications. Policy options B and C only make it possible for employees to move faster towards certain higher crew categories, but this does not result in a higher pay for a given crew category. Taking into account manning requirements as set in the relevant manning regulations, it remains the prerogative of the employer to determine the composition of its crew.

In all options, also in the baseline scenario, several vacancies related to skilled workers remain open. Under the baseline scenario there is thus already a willingness to pay from the employer side for more skilled crew. To a large extent, options B and C will make it easier for employers to recruit these required skilled workers, thereby giving them the opportunity to further expand their businesses. This is particularly valid for SMEs who often face difficulties in fulfilling their staffing needs.

In the last round of stakeholder consultations during the process of revising the first IAR, representatives of the industry confirmed that they do not expect higher labour costs as a result of the policy options B and C.

To conclude, as other external factors will also play an important role in wage levels, it is almost impossible to accurately single out the effect of the policy options on wages. However, as argued above, compared to the baseline scenario the effects are expected to be limited.

	B	C1	C2
Impact on labour costs/wages	0	0	0

2.1.6. Impact on employment

Compared to the baseline scenario, options B and C are not expected to result in significant job creation or job losses for inland waterway crew. However, options B and C aim to contribute to reducing the supply-demand gap by stimulating job mobility across regions and improving the sector's attractiveness in order to fill existing vacancies. Options B and C will therefore have a positive impact on employment through a higher filling-rate of vacancies. For each option, the impact will be proportionate to their impacts on mobility and attractiveness. On a very small scale new jobs could be created as a result of option C (and particularly under C1) in the fields of quality standards, assessment of competence and examination, as well as in the embryonic simulator business. With respect to potential negative impact, KSS creates a small but distinctive labour market for pilots. Under all scenarios, but slightly more likely under C, some pilots could lose their jobs if a stretch is no longer considered as KSS or if the demand for pilotage services decreases if KSS examination for the stretch is facilitated. It is difficult to make projections for both aspects, but in practice the impact on pilot employment should remain very limited. In view of the expected shortage of skilled personnel, pilots who could lose their job should be expected to find easily a job as boatmaster.

	B	C1	C2
Impact on employment (filling rate of vacancies)	0^{+}	$+^{+}$	$+^{+}$

2.2. Economic impacts

2.2.1. Impact on the contribution of IWT to the European industrial base

As discussed in section 3.2.2, the IWT sector has a role to play in strengthening the European industrial base. Under the baseline scenario, this contribution is threatened as the suboptimal labour mobility will hamper the efficient functioning of the IWT sector. As under option B and C, the functioning of the labour market will be improved, these options will also contribute to maintaining or improving the strength of the European industrial base. For each option, the impact will be proportionate to their impacts on mobility and attractiveness.

	B	C1	C2
Impact on the contribution of IWT to the European industrial base	0^{+}	+	+

2.2.2. Impact on the contribution of IWT to the European transport energy efficiency

As discussed in section 3.2.2, the IWT sector has a role to play in strengthening the European industrial base. Under the baseline scenario, this contribution is threatened as the suboptimal labour mobility will hamper the efficient functioning of the IWT sector. As under option B and C, the functioning of the labour market will be improved, these options will also contribute to maintaining or improving the contribution the IWT sector can make to energy efficiency goals by taking up a higher part of the overall transport in the EU. For each option, the impact will be proportionate to their impacts on mobility and attractiveness.

	B	C1	C2
Impact on the contribution of IWT to the European transport energy efficiency	0^{+}	+	+

2.2.3. Impact on transport costs and on final consumer prices of goods

Transport costs could be marginally influenced by changes in labour costs in the IWT sector (that only concern a small proportion of the total transport costs). However, as explained under section 6.1.5. the impact of all policy options on labour costs is insignificant from an EU-wide point of view. Furthermore, IWT is facing fierce competition with other transport modes. It is therefore unlikely that there will be any subsequent effect on transport costs. Nevertheless, there may be an indirect benefit for transport costs as inland waterway transport is more cost-efficient compared to other modes of transport under certain conditions. Eliminating barriers for the uptake of inland waterway transport can therefore reduce the overall costs of transport for certain industry sectors. However, it is unlikely that any of the policy options influence consumer prices of goods at a European scale, knowing also that transport costs only concerns a small proportion of the price of goods.

	B	C1	C2
Impact on transport costs and on final consumer prices of goods	0	0	0

2.2.4. Investment costs[131]

Under option B, the investment in human resources time for the implementation of new instruments proposed under the amended Directive 2005/36/EC (measure 6), in particular for national administrations and training institutes, is significant as the sector has to take the initiative and come with a CTF or CTT proposal. Some of the costs related to developing a competence-based approach for operational workers will also be needed for the CTF or CTT. Costs will be linked to the setting up a quality system which includes certifying/recognising training institutes and their curricula. However, few costs for adapting the curricula should be incurred at EU level since setting up the platform does not require replacement of the national system, unless a Member State decides otherwise. Investment costs would also be incurred if the CCNR set up a multilateral administrative arrangement for the recognition of crew qualifications. This would include audit, reporting and meeting costs for Member States and staff costs to manage the recognition process for the CCNR. The CCNR estimated that two audits could be processed per year with a maximum of 5-6 additional requests in total. Contrary to CTT/CTF, there will be costs for adaptation of curricula of education institutes as the CCNR requires alignment to their standards. For both alternatives, it is possible that mandatory examination is not included under option B. In this case, the related investment costs (in particular for the development of the programme) may not be necessary under option B. At EU level, investment costs under option B will be lower than under option C since the number of participants will be lower. No significant investment costs are expected for the Commission Recommendation on KSS.

Investment costs related to **option C** are presented in the table below. Only significant costs are presented. They are all related to measures linked to mutual recognition of professional qualifications. Further information on the underlying assumptions and calculations can be found in Annex 13.

Table 2: Significant investments costs per measure

Investment costs (in euro)	
Measures linked to mutual recognition of professional qualifications	
Introduction of competence-based minimum requirements for boatmasters certificates tested through a practical exam (measure 2)	0.01 to 0.1 million per Member States for the development of the exam programme (only needed in some countries where practical exams do not exist yet e.g. Bulgaria, Croatia, Czech Republic, Germany and Slovakia). In addition, investment costs for a ship or simulator for the purpose of examination

	may have to be considered in countries where not available. Asking candidates to bring the boat (their own or rented) could be an alternative entailing no investment. This option is already used in several Member States (0-2.6 million per MS). For an estimation based on average costs for all MS, a rough estimation of 5.5 million can be given knowing that cheaper alternatives exist.
Accreditation/recognition of training institutes and their curricula (measures 3 and 9 **in C1**)	9000 per programme accreditation, which would make max 0.4 million if all 43 programmes among the 11 interconnected Member States having training institutes are accredited. Note that a recognition process is much less costly than an accreditation. Costs in this case could be considered as insignificant.
Analysis and modification of curricula (measures 3 and 9 **in C1**)	For 43 programmes, roughly an investment in the range of 0.4 – 4 million. It could also be considered that these costs although significant are inherent to the necessary adjustments education and training system have to make anyway if they wish to keep up with external (including technological) developments. For an estimation based on average costs for all programmes, a rough estimation of 2.2 million can be given knowing that this could also be reasonably considered that the marginal cost of this would be negligible in view of the ongoing activities under the BAU.
Optional introduction of an intensive training programme for workers entering from outside the sector (measure 12)	9000 per programme accreditation. For the Member States potentially concerned, this would represent a maximum of 216,000 for two programmes (boatmaster and boatman) in all these Member States. More realistically, investment costs could be estimated at 0.1 million assuming that within the 11 interconnected Member States which have training institutes, the "participation rate" would be 50%, either because a number of Member States would organize such a programme only at one level (boatmaster or boatman) or would not organize it at all. However, as this measure is optional, neither the investment costs nor the benefits have been taken into account.

In total, upfront investment costs of **8.0 million for suboption C1** and of **5.6 million for suboption C2** are expected for the public sector and, in case of C1, for IWT education and training institutes. For the private IWT sector itself, no significant investment costs are expected, neither for employers nor for employees.

	B	C1	C2
Impact on upfront investment costs	0^-	-	-

(the sign'$^-$' just above the main sign indicates a negative effect i.e. costs but of a lower magnitude that a '-').

2.2.5. Impact on recurrent administrative costs

The impact on recurrent administrative costs is presented in the table below for option C. The impacts for option B are presented thereafter. Further information on the assumptions and the underlying calculations can be found in Annex 14.

Table 3: NPV (in million) of the recurrent administrative costs under option C 2030 and 2050

	Suboption C1		Suboption C2	
Policy measures causing administrative burdens	**2030**	**2050**	**2030**	**2050**
Minimum standards linked to the frequency of the medical check-up *Directive 96/50/EC* *CCNR* *New frequency*	**+2,3** -1,3 **+7,7** **all**	**+3,3** -2,1 **+13,2** **all**	Idem C1	
At boatmaster level, competence standards tested by practical exam - measure 2 + measure 3 (in case of option C1 only)	-0.5[132] Private/all	-0.7 private/all	-1.9 private/all	-2.8 private/all
Introduction of a boatman exam (theoretical or/and practical - optional) - measure 8 + measure 9 (in case of option C1 only)	-0.8[133] private/all	-1.3 private/all	-3.5 private/all	-5.2 private/all
For boatmasters and boatmen, recognition/certification system for education/training programs and mutual recognition of diplomas (measure 3 and 9)	-2.8 public	-4.4 public	n.a.	
Harmonization of required information in SRBs and logbooks (measure 10)	**+0,1** **private**	**+0,2** **private**	**Idem C1**	
Practical exam for workers entering from outside the IWT sector **(optional** measure 12)	(-800€ per boatman exam -6000€ at boatmaster level) private		Idem C1	
Organisation of exams and issuance of authorisations for all KSS in Member States **(optional** measure 16) *Impact for Member States* *Benefits for boatmasters taking the exam*	insignificant **(0 to +0,7)**	insignificant **(0 to +0,8)**	Idem C1	
Total administrative costs (on the basis of the new frequency for medical check-up and excluding costs for optional measures 12 and 16)	**+3.7**	**+7.0**	**+2.4**	**+5.4**

('+' represents administrative savings and '-' administrative costs; optional costs are put between brackets)

From the above table the following conclusions can be drawn:

- The total administrative savings for suboptions C1 and C2 are relatively similar, with a small advantage on the long term for suboption C1.
- With regard to the minimum standards linked to the frequency of the medical check-up, the suboption "new frequency" has the most beneficial cost-benefit ratio over time (based on the comparison between negative safety impact of only 3.3 million by 2050 and the above-mentioned administrative costs benefits). This new frequency already received explicit support in the CEG from some experts (e.g. from NL and FR). Savings generated by this measure are relatively high resulting in a positive ratio for total administrative costs/savings.
- The most significant administrative costs are related to the mandatory examination to test the competencies at boatmen and boatmaster levels (more significantly for boatmen and under C2) and, in case of C1 only, to the recognition/accreditation system for exam programs. For the first cost category, it should be noted that that the estimates take into account a number of scenarios related to the examination, including more costly ones. As regards the second cost category, the estimates is based also upon the assumption that that some Member States will opt for an accreditation system whereas it is likely that most Member States adopt a (cheaper) recognition that will be integrated in existing national quality assurance systems.
- Significant costs are also related to the organisation of practical exams for lateral entrants but this is optional for the Member States.
- For a number of measures, e.g medical checks or exams, it is not possible to clearly identify whether the private or the public sector will bear the costs. Already in BAU this varies from one Member State to another. However suboption C1 should be more costly for the public sector (due to quality assurance system covering also education/training

institutes) but less costly for the private sector (SMEs). Comparing both suboptions, C1 represents overall less administrative burden due the exemption from taking administrative exams for those using the education path.

Under option B, no significant savings are generated as there is no measure tackling medical check-up for boatmasters. On the other hand, less administrative costs will be incurred as the number and scope of measures are less important. However, for the CTF or CTT for operational workers (measure 6), there will be similar recurrent costs related to organising the competence based approach. These relate, in particular, to the management of the quality system including the compliance check that will be required on a regular basis. In addition, under Directive 2005/36/EC, also for professions under automatic recognition, in case of provision of services, there is an obligation to submit a declaration to the authorities of the host country. Beyond the administrative burden it represents, this could involve some costs for applicants as some Member States charge a fee for processing the declarations. This might also be the case under CTT/CTF. The setting up by the CCNR of a multilateral agreement for the recognition of crew qualifications (measure 5), would require less administrative costs as no permanent quality system is put in place. Only costs inherent to regular meetings related to the implementation of the agreement would be incurred. In view of the fact that these already exist for the agreement for SRBs, additional costs are considered negligible. For both measures, due to the fact that mandatory examination may not be included under option B, related administrative costs that were unavoidable under option C might not be incurred under option B. At EU level, administrative costs to incur under option B will be lower than under option C since the number of Member States adopting CTT/CTF will be lower. With the Commission guidelines on KSS, no significant administrative costs are expected. In total, however, in the absence of significant savings, the ratio savings/costs is expected to be less favourable under option B.

	B	C1	C2
Impact on recurrent administrative costs	0^{-}	$+^{+}$	+

('+' represents administrative savings and '-' administrative costs)

2.2.6. Impact on different regions

All IWT Member States will be positively affected in terms of labour mobility, safety and increased attractiveness of the profession. Any implementation costs are outweighed by benefits. Experts from IWT Member States, representatives from the main River Commissions (Rhine, Danube, Sava) as well as social partner organisations representing at EU-level the IWT employers and the employees actively contributed in a positive way to the development of EU initiative and did not signalled any overall negative impacts on certain regions or countries. Only the representative of some non-interconnected countries (in particular from UK and SE) called upon the Commission to keep the possibility of exemption as currently foreseen under Directive 96/50/EC.

This said, some European regions or individual Member States may be affected in a different manner depending on the measure. The section below highlights the most significant variations of impacts.

In terms of mobility,

In general, the Member States on the interconnected IWT network with the largest workforce will have more benefits: CCNR countries (NL, DE, FR, BE), and RO.

With regard to **mutual recognition** of professional qualifications, the workers from non-CCNR countries and from FR will enjoy larger benefits. This is because in policy option C, non-CCNR countries' boatmaster certificates and operational workers' qualifications will,

contrary to the BAU situation, automatically be recognised on the Rhine, thereby increasing possibilities for labour mobility.

Suboption C1 will have a higher impact in non-CCNR countries with IWT training/educations institutes (AT, BG, CZ, HU, PL, RO and SK) as their education/training programmes are, with only a few exceptions, not recognised by CCNR countries. In view of the yearly number of entrants in IWT institutes per country, RO will by far be the biggest beneficiary among these countries, followed to a much less extent by PL, CZ and BG (see table 2 under Annex 2).

The increased labour mobility resulting from options B and C will have a positive effect on reducing the **gap between the supply and demand** of workers and on labour mobility in the different regions. As mentioned under section 6.1.1., it is impossible however to estimate the exact impact on the worker supply-demand gap because the number of IWT workers that will ultimately take advantage of increased labour mobility is unknown. The Rhine region - which under the baseline scenario is expected to face a large labour deficit – is very likely to benefit much more in this respect. Indeed, due to increased labour mobility, workers from the Danube (AT, BG, HU, RO and SK), the East-West (NL, DE, PL, CZ), and the North South (BE, FR, NL) corridor will gain access to the Rhine labour market more easily. On the other hand, surplus workers from the Danube, the East-West and the North South (till 2020) corridors will also benefit as they will be able to leave the saturated labour market in their own region.

Depending on its effectiveness as regards mutual recognition, option B could also have similar effects with respect to operational workers in case of full uptake of the instruments. As explained in previous sections, it is however unlikely that option B would achieve similar results as option C. On a different note, the online public consultation, when comparing harmonised requirements (option C) with the voluntary approach (option B) for two important river areas, the Rhine and the Danube, indicates that mandatory harmonised professional qualifications and training standards will, according to 85% of CCNR stakeholders, and a bit less than 80% of Danube stakeholders, result in fairly to very positive effects on labour mobility. For voluntary measures these percentages are respectively around 50% and 60%.

In terms of safety

In general, the Member States on the interconnected IWT network with more IWT freight transport volumes will have more safety benefits i.e. CCNR Member States (NL, DE, BE and FR). From the point of view of the workers, the competence-based qualification system should have more safety benefits for workers from non-CCNR countries as training standards in general have kept up less with technological developments.

By the way, the online public consultation indicates that mandatory harmonised professional qualifications and training standards (option C) will, according to around 90% of CCNR stakeholders, and more than 85% of Danube stakeholders, result in fairly to very positive safety effects. For voluntary measures (option B) these percentages are for both rivers only around 60%.

In terms of costs,

Under option C, the introduction of mandatory practical examinations for boatmasters will impact regions and individual Member States in a different way as certain Member States do not have such exams (e.g. DE, NL, CZ or SK) nor use training ships or simulators (most Danube countries e.g. BG, CZ, HR). It should nevertheless be stressed that the measure is supported by all stakeholders, including from the expert in the CEG that do not organise such exams for the moment.

Regarding suboption C1, Member States with more education/training programmes will in general face higher costs for their recognition (RO, NL, FR, BE, DE). Furthermore, non-

CCNR countries will face more significant costs per programme for their adaptation to the new competence-based requirements. These Member States are in favour of establishing such a recognition system for professional training as recognition/employment benefits should largely compensate the costs. CEG experts unanimously supported the establishment at EU level of a quality system for recognition that would allow using the recognised diplomas/training certificates in the procedure for the issuance of boatmasters' certificates.

Option C will also reduce the administrative burden of the CCNR countries and the countries with which the CCNR has concluded administrative arrangements (AT, BG, CZ, HU, PL, RO, SK), because these recognition agreements could be abolished and related administrative costs for their implementation would no longer be incurred.

As a side note, the online public consultation indicates that mandatory harmonised professional qualifications and training standards (option C) will, according to 54% of CCNR and more than 70% of Danube stakeholders, result in fairly to very positive effects on the administrative burden. For voluntary measures (option B) these percentages are respectively around 23% and 62%.

As far as KSS is concerned, the Rhine, the Seine and the Danube area will be more significantly affected, as they represent the largest share of transport affected by KSS requirements (see 3.3.2). Therefore, those regions will be more impacted by the KSS related measures under both options B and C. It should be noted that CEG experts from FR and UK opposed KSS examination by other Member States.

2.2.7. Impact on SMEs

The IWT is sector composed almost exclusively of SME's.[134] Therefore, the direct private sector impacts described in the previous sections are all affecting SME's only. 90% of enterprises in the Netherlands are micro-enterprises with 1 to 5 people employed[135]. In many cases, the vessels are owned and operated by a family. The rest of the Western part of Europe where most of the IWT activities takes place i.e. Belgium, France and Germany, shows a similar business structure. Policy options B and C will both positively impact SMEs. As described above, these policy options will have positive effects on labour mobility and safety compared to the baseline scenario. In particular, increased labour mobility resulting from option B and – with significantly higher effectiveness – from option C will make it easier for SMEs to recruit staff from across the European Union, thereby reducing labour shortages. Increased safety will also reduce accident costs for SMEs. Effectiveness with regard to safety is expected to be higher under option C compared to option B. These benefits are estimated to largely off-set administrative and investment costs, which are anyway largely borne by the public sector, rather than the private sector. SMEs will therefore have to bear only a small proportion of the costs (e.g. those related to participating in some Member States in administrative exams), which will be more than off-set by the positive labour effects with respect to labour mobility, safety and attractiveness of the profession. In addition, under suboption C1, significant benefits for SMEs are expected in terms of reduced administrative burden compared to C2 as candidates entering the profession via the education path will be exempt from taking an administrative exam. More information on quantitative estimations of the costs and benefits for SME's can be found in a table under Annex 15.

The European Skipper Organisation (ESO) which represents the independent IWT entrepreneurs has actively participated in the preparation of the initiative at EU level, including the impact assessment, through its active participation in the CEG meetings. ESO is in favour of the adoption of a modern and flexible regulatory tool for training and certification at EU level, which will improve safety and provide fair and competence-based access to the profession.

	B	C1	C2
Impact on SMEs/micro-entreprises	+	++	$+^{+}$

2.2.8. Impact on third countries

The impact on third countries is limited for options B and C. Switzerland would need to adapt its legislation in case of changes in regulations on the Rhine river. The same would apply for Serbia and Bosnia and Herzegovina in case of changes of the legislation for the Sava river. Ukraine, Russia, and Moldova may adjust their legislation in case of modification of the Danube recommendations. In any case, crew from third countries will need to adhere to the future new prescriptions on crew qualifications.

The impact of measures linked to mutual recognition of professional qualifications would be positive for both options B and C. The external study[136] has identified the following benefits by 2030 under option C for third countries: firstly, administrative savings as a consequence of the new frequency of medical check-ups (€ 0,6 million); secondly, gains in salary due to the quicker recognition of qualifications of boatmasters resulting from a competence-based approach (€2,1 million); and thirdly, and this would also be valid for option B, gains in salary due to the recognition of harmonized qualifications of other crew members (€1 million). Conversely, the introduction of certificates for large convoys would be associated with some limited costs, corresponding to the loss of salaries for the additional experience the boatmaster has to gain on large convoys before obtaining the special authorization (€ -0,1 million). The benefits from prevented accidents however are expected to largely outweigh these costs.
Measures related to KSS are considered to have little impact on third countries. There would be benefits if some KSS requirements are dropped or reduced or if boatmasters of third countries could take their KSS exams in one single country.

	B	C1	C2
Impact on third countries	0^{+}	+	+

2.3. Environmental impact

While an increased use of IWT will contribute to the overall energy-efficiency of the whole transport system, the proposed policy options on their own are not expected to have a significant impact on modal shift and thus on the environment including fuel use, emissions, pollution etc.

2.4. Summary of the economic, environmental and social impacts

The table below summarizes the impacts addressed under sections 6.1., 6.2. and 6.3.[137] Information on quantitative estimations of the costs and benefits for the private and public sector can be found under section 7.2. and in Annex 15.

Table 4: Summary of the economic, social and environmental impacts compared to the baseline scenario

Impact compared to the baseline	A (baseline)	B	C1	C2
Labour mobility	0	+	++	++
Access to the profession	0	0^{+}	++	+
Safety	0	0^{+}	++	++
Job quality/attractiveness	0	0^{+}	++	+
Labour costs/wages	0	0	0	0
Employment (filling rate of vacancies)	0	0^{+}	$+^{+}$	$+^{+}$
Contribution to the European industrial base	0	0^{+}	+	+
Contribution to the EU transport energy efficiency	0	0^{+}	+	+
Transport and final consumer prices	0	0	0	0
Investment costs	0	0^{-}	-	-
Recurrent administrative costs	0	0^{-}	$+^{+}$	+
SMEs/Micro-enterprises	0	+	++	$+^{+}$

Third countries	0	0^{+}	+	+
Environmental impact	0	0	0	0

(number of "+" refers to the strength of a positive correlation, " –" refers to a negative correlation; ; the small sign "$^{+}$" just above the main sign indicates an (additional) positive effect but of a lower magnitude than a "+").

Apart from investment and recurrent costs, all the other impacts are estimated to be positive. This was also confirmed through the online public consultation. More than 75% of the respondents expect a positive impact on labour mobility and more than 85% on safety in case of regulatory intervention (option C). As regards impact on job quality 70% of the respondents have a positive opinion and for impact on SMEs, 65% of the respondents expect a positive impact. For the voluntary support measures (option B), the respondents estimate the positive impacts to be considerably lower. Certain categories of stakeholders expect more positive impacts than others: boatmasters, public authorities and training institutes. But each stakeholder category the balance is always positive: a substantial larger proportion of the respondents expects positive impacts from the proposed measures.

3. COMPARING THE OPTIONS

3.1. Effectiveness

The ineffectiveness of policy option A, the baseline scenario, has been demonstrated above when describing the identified problems and its likely evolution in the future (see section 3).

Policy option B is expected to be more effective than option A in reaching the objectives of this initiative based on the following considerations:

- the mutual recognition of professional qualifications of workers (operational objective 1) will be promoted further by the use of new instruments under directive 2005/36/EC (CTF and CTT) and/or through a CCNR multilateral agreement covering crew qualifications.
- it is most likely that a Commission Recommendation on KSS will only marginally impact the proportionality of KSS requirements (operational objective 2).

However, the improvement of the effectiveness of option B is uncertain, because these measures rely on initiatives and commitments to be made at the initiative of the profession, which proved to be only partially effective in the past. (see section 3.4).

Moreover, the adoption of a CTF/CTT does not exclude maintaining parallel training structures in the Member States. In addition, CTF/CTT cannot address a number of supporting or organisational elements needed to support the recognition of qualifications that would still need to be regulated for the profession e.g. the procedure for obtaining and checking SRB. Finally, in view of the possibility of exemption for Member States to adopt CTT/CTF under Directive 2005/36/EC, it is likely that the CCNR would maintain their agreements or conclude new ones to cover the exempted countries. The existing fragmentation of the legal framework would even likely increase since Directives 96/50/EC and 91/672/EEC would most likely not be repealed. When a new CCNR administrative arrangement would be created, existing problems related to the coverage and legal uncertainty linked to the form of the arrangement as explained in sections 3.3.1. would remain.

Policy option C is judged to be more effective than options B and A, as all boatmasters and a larger proportion of operational workers on interconnected waterways would be mutually recognised throughout the EU (operational objective 1). In comparison to option B, all the remaining drawbacks from the use of the new instruments under Directive 2005/36/EC or the administrative arrangements with the CCNR would be eliminated. The fact that Member States will be allowed to organise exams and issue authorisations for all KSS in Europe could further promote the proportionality of KSS; the same applies to binding EU criteria framing the use of KSS (operational objective 2).

With a broadly comparable impact in terms of mobility, the effectiveness of suboptions C1 and C2 is comparable, with some advantage for suboption C1, in particular if the linkage with attractiveness is considered. This is due to the more positive impact on attractiveness generated by the recognition of diplomas and training certificates during the procedure for obtaining a qualification.

3.2. Efficiency

As shown in previous sections, it was not possible to monetize all costs and benefits. Some estimates are available for option C for investments costs, administrative costs, safety effects and job quality/attractiveness. For other impacts, only qualitative assessments are available.

Comparing only the total monetised cost and benefits for option C yields benefits in terms of safety (NPV of around € 75 million (2030) and € 191 million (2050) and job quality/attractiveness (around € 31 million (2030) and € 47 million (2050)) which more than compensates the upfront investment costs (NPV estimated at € 8 million for suboption C1 and € 5.6 million for suboption C2). Investment costs are all borne by the public sector. Considering only the benefits in terms of administrative savings (€ 13.2 million by 2050 due to the new medical check-up frequency), they would already outweigh the to-be-incurred administrative costs (for suboption C1 around € 4 million by 2030 and € 6 million by 2050 and for suboption C2 around € 5 million by 2030 and € 8 million by 2050). It should also be noted that the administrative cost for suboption C1 are significantly lower than for suboption C2. Under suboption C2, education/training institute examinations for boatmen and boatmasters are not mutually recognized, which generates a substantial additional administrative burden compared to suboption C1 as candidates have to go through additional examinations before obtaining their qualification (administrative exams after education exams). It is estimated that this would affect 85% of the candidates. Suboption C1 is therefore considered to be more efficient than suboption C2. Further details on these estimates can be found in Annex 15.

Apart from these available monetised impacts, other impacts are also relevant for assessing the efficiency of option C. For example, as far as labour mobility is concerned, the impact was calculated in terms of extra workforce available on the labour market, and not in monetary terms. It has been demonstrated in section 6 that a positive impact is to be expected in this respect. A significant number of boatmasters would be added to the available workforce on the Rhine if all certificates issued under Directive 96/50/EC are recognized on the Rhine and those that are already part of the CCNR recognition system will also benefit from a more automatic recognition. Moreover, whereas a significant number of operational workers will directly benefit from the measure on recognition of qualifications as they are currently facing downgrading; many others will see mobility as a real opportunity since they can access sooner with equivalent qualification to navigation on the Rhine. Finally, other main impacts for which qualitative assessments are available (e.g. reduction of vacancies in the sector – 'the employment effect') further add to the effectiveness and efficiency of policy option C.

Investment and administrative costs are expected to be lower for option B compared to option C. However, the positive effects are more than proportionally lower, due to the partial uptake of instruments. Option B is therefore less cost-effective than option C. More information can be found in sections 6.2.1. and 6.2.2.

3.3. Coherence

Compared to the baseline scenario, options B and C are more coherent with the completion of the internal transport market and the EU policy objectives reflected in the Europe 2020 growth strategy and the political priorities of the Juncker Commission. As option C

(regardless of its suboption) will be most effective in contributing to the mutual recognition of workers, it would also contribute most to the EU energy efficiency, growth and industrial development political priorities of the Juncker Commission. Therefore, option C is considered to be more coherent than option B. The competence-based standards for examination of future boatmen and boatmasters appears to be necessary to fully achieve the mutual recognition of professional qualifications of boatmen and boatmasters. As both boatmen and boatmasters are skilled workers and need to possess certain competencies, another Member State needs to be confident about the skill levels of these workers before granting the recognition of professional qualifications. For workers using the education path to access the profession, these skills are developed and tested through the education system. In order to come to mutual recognition of diplomas and training certificates, EU minimum requirements would need to be set for the competencies to be demonstrated by candidates before the award of their diplomas and certificates. These competencies only cover the aspects which are relevant for the safe operation of vessels and therefore do not interfere with the general education aspects which remain under the competence of the Member States. The EU minimum requirements set minimum levels of competencies, necessary for the safe navigation of vessels. These requirements do not entail a full harmonisation of training and education in IWT. Member States can continue to differentiate IWT training and education to take account of the national situation. The identification of the required minimum competencies is supported by the efforts of the European network of nautical schools (EDINNA) which has developed (competence-based) Standards for Training and Certification in Inland Navigation (STCIN). In the framework of two recent bilateral agreements, the CCNR considered these standards necessary for assessing training institutions prior to granting recognition of diplomas. The approach is coherent with the spirit of the European Qualifications Framework[138] which focuses on learning outcomes rather than on the duration of training schemes. The reference to these minimum standards is considered essential for developing a European internal market for employment in IWT as it helps Member States, education institutions, employers and individuals compare qualifications across the EU's diverse education and training systems. Moreover, in line with measures taken for other modes of transport, competence-based EU minimum requirements are only foreseen for skilled crew - boatmen and boatmasters. For unskilled crew, such as deckhands, only minimum requirements with regard to age, physical and mental fitness are considered, in order to facilitate labour mobility. As such the proposed intervention is necessary and proportionate to its goals.

The policy options were developed with a balance between economic and social measures, in order to avoid that action on one pillar would negatively affecting the other. No significant environmental impacts are expected.

3.4. Summary on the comparison of policy options

Table 5: Effectiveness, efficiency and coherence of the policy options compared to the baseline scenario

	A	B	C1	C2
Effectiveness (total)	0	0^{+}	$+^{+}$	+
Operational objective 1: Ensure mutual recognition of professional qualifications of workers	0	0^{+}	$+^{+}$	+
Operational objective 2: Ensure that KSSs are proportionate to their safety goal and do not unnecessarily hamper labour mobility	0	0^{+}	+	+
Efficiency	0	0^{+}	++	+
Coherence	0	+	++	++

("+" refers to the intensity of a positive correlation, "0" refers to a neutral impact, the small sign "$^{+}$" just above the main sign indicates an (additional) positive effect but of a lower magnitude than a "+", no negative correlation has been identified)

3.5. Conclusion: preferred policy option

Taking into account effectiveness, efficiency and coherence, option C is preferred over option A and B. Under option C, suboption C1 is judged to be slightly more effective and efficient than suboption C2.

This Impact Assessment Report leaves it up to the political decision-makers to decide on the preferred policy suboption under option C. The difference between suboption C1 and C2 is the introduction under C1 of minimum competence-based standards for examination of future boatmen and boatmasters in education and training institutes and additional administrative exam waivers for those with a diploma or certificate issued by those institutes. The minimum standards only cover the aspects with are relevant for the safe operation of vessels and therefore don't interfere with the general education aspects which remain under the competence of the Member States. Similar Union legislative requirements for education and training institutes already exist for the rail and air transport sector. In these sectors, the requirements go further as they also entail continuous training requirements. Under option C2, no requirements are set for training and education institutes as all boatmen and boatmasters are required to pass an administrative exam organised under the responsibility of a competent authority in order to have their qualifications recognised across the EU, also if they are already in the possession of a diploma or certification of an IWT education or training institute.

The two suboptions are in line with stakeholders' opinion expressed both in the online public consultation and in the Common Expert Group (CEG). Opinions indicated a high level of support towards regulatory measures in relation to the harmonisation of professional requirements, qualifications and examinations, whereas the introduction of voluntary measures received a considerably lower level of support. The experts from the competent authorities in the Member States represented in the CEG considered the mutual recognition of diplomas and training certificates based on competence-based standards as a necessary step towards improved mobility of workers.

The two suboptions are also in line with the proportionality principle. In line with measures taken for other modes of transport, competence-based EU minimum requirements, verified through examinations, are only foreseen for skilled crew - boatmen and boatmasters. For unskilled crew, such as deckhands, only minimum requirements with regard to age, physical and mental fitness are proposed. The recognition of a third path via an intensive training programme is proportionate as its introduction is made optional. Under option C1, the measure to certify training programmes is considered proportionate to its goals as it does not interfere with the national education curricula on general subjects and it allows preventing those who have already successfully completed an approved training programme in the EU be obliged to pass additional administrative exams on the same subjects that were already covered by their training programme. To instil the necessary confidence for the mechanism of mutual recognition, the requirements of quality standards with respect to assessment of competences, recognition of programmes and monitoring of the whole certification system are considered proportionate. Finally, introducing common criteria for establishing requirements for knowledge of specific situations is necessary as the establishment of such requirements should be justified on safety grounds and the knowledge required should be proportional to the safety issues at stake.

Regarding implementation and compliance issues with respect to option C, it should be noted that a final decision has not been taken yet on the form of the legislative instrument to be proposed (directive or regulation). There was already some discussion with the sector in CEG about a reasonable implementation period as well as specific and realistic transitions measures and periods for various measures.

4. MONITORING AND EVALUATION

The Commission services will monitor the implementation and effectiveness of this initiative through a set of core progress indicators, listed in the table below. It is foreseen that seven years after the end of the transposition period date of the proposed legislation, the Commission services will carry out an evaluation to verify whether the objectives of the initiative have been reached. This evaluation will be carried out inter alia based on the core progress indicators referred to below. This evaluation will be in line with Commission's evaluation requirements.

Table 6: Core progress indicators for monitoring purposes

Operational objective	Core progress indicators	Source of data
Ensure mutual recognition of professional qualifications of workers	- Absence of complaints to the Commission from the sector - Positive assessment of the IWT sector, Member States and River Commissions - decrease in the number of CCNR administrative arrangements[139]	- questions / complaints to the Commission from the sector - fact finding survey/public consultation - Expert group, - River Commissions
Ensure that KSSs requirements are proportionate to their safety goal and do not unnecessarily hamper labour mobility	- number of questions / complaints from the sector to the Commission - increase of KSS authorization delivered on those stretches where they are maintained. - number of river streches for which KSS requirements are withdrawn or reduced by Member States - number of countries organising exams and issuing authorisations for KSS throughout Europe - number of exam programs of training and education institutes in line with the EU minimum requirements	- questions / complaints to the Commission from the sector - fact finding survey/public consultation - Expert group, - River Commissions

ENDNOTES

[1] A New Start for Europe: My Agenda for Jobs, Growth, Fairness and Democratic Change Political Guidelines for the next European Commission, Opening Statement in the European Parliament Plenary Session Strasbourg, 15 July 2014

[2] 1 convoy with four pushed lighters (=7 000 net tons) is the equivalent of 280 trucks at 25 net tons each. Source: Via Donau.

[3] Recent research carried out by the PLATINA II project indicates that seizing the potential for IWT continental container transport would reduce transport costs for the industry every year with 899 million of Euros (http://naiades.info/repository/public/documents/Downloads/118_Study_Market_Potential_Continental_Market_2015_04_24.pdf)

[4] AT, BE, BG, DE, CZ, FR, HR, LU, NL, HU, PL, RO, SK as well as EE, IT, LT, FI, PT, SE and UK. CY, DK, EL, ES, IE, LV, MT and SI are considered not having inland waterways transport in the framework of this study.

[5] European Commission (2014) EU transport in figures: Statistical pocketbook 2014.

[6] AT, BE, BG, DE, CZ, FR, HR, LU, NL, HU, PL, RO, SK.

[7] European Commission (2014) EU transport in figures: Statistical pocketbook 2014, p.42.

[8] CE Delft (2012), Medium & Long Term Perspectives of IWT in the EU and NVB/Erasmus Universiteit (2012), Blue Ports: de onmisbare schakels, p. 11 Conclusion.

[9] Communication from the Commission to the European Parliament, the Council, the European Parliament, European Economic and Social Committee, the Committee of the Regions and the European Investment Bank on A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, COM/2015/080 final

[10] European Commission (2014) EU transport in figures: Statistical pocketbook 2014, p.82.The figure is the average for the 28 EU Member States. The average also includes Member States in which there are no navigable rivers, which results in a downward distorting effect. Figures on modal split share is according to CCNR-EU-Panteia (2014) Market Observation, p.50-51.

[11] E.g. Extract from TEN-T project "Upper Rhine, a connected corridor": La région du Rhin Supérieur dispose d'une offre infrastructurelle dense. D'une part, le Rhin, et son réseau de canaux connectés (notamment au Danube, au Neckar et au Main), constitue la voie fluviale la plus fréquentée d'Europe mais dispose encore d'importantes réserves de capacités. D'autre part, les réseaux ferroviaire et routier présentent une offre de capacités très importante. Plusieurs points de saturation ont néanmoins été relevés aux niveaux ferroviaire et routier dans le cadre de l'étude sur les capacités des réseaux magistraux et portuaires conduites par les ports du Rhin Supérieur en 2014. According to the Study on TEN-T Core Network Corridor "Rhine–Danube" (http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/doc/2014-11-05-tent-rhi-dan-draft-final-report-v4.pdf), lock capacity utilization on the Danube is situated between 11 and 37%.

[12] Communication: Towards Quality Inland Waterway Transport Naiades II COM(2013) 623 final.

[13] European Committee for the elaboration of standards for inland navigation

[14] EU Transport infrastructure policy that connects the continent between East and West, North and South.

[15] The CCNR is an international intergovernmental organization established by the Revised Convention for Navigation on the Rhine - referred to as the Mannheim Convention - of 17 October 1868. It has five member states: BE, CH, DE, FR and NL. See: http://www.ccr-zkr.org

[16] The DC is an international intergovernmental organization established by the Convention regarding the regime of navigation on the Danube signed in Belgrade on 18 August 1948. The Member States of the Danube Commission are AT, BU, HU, DE, MD, RU, SR, SK, UA, HR). See http://www.danubecommission.org

[17] United Nations Economic Commission for Europe has 56 member states and two working parties dealing with inland waterways. See: http://www.unece.org/trans/main/sc3/sc3.html

[18] The Sava Commission is an international organisation established by the Framework Agreement on the Sava River Basin (FASRB) in 2002 between HR, SR, BA and SI. See http://www.savacommission.org

[19]The Moselle Commission is an international intergovernmental institution established by the Moselle Convention signed by DE, FR and LU in 1956. http://www.moselkommission.org

[20] RNP was adopted through Resolution 2010-I-8-Annex 1.

[21] The composition and functioning of these agreements will be developed under section 3.2.1. Service Record Books (SRBs) register navigation time and qualifications. They as also provide proof that mental and physical fitness requirements have been met by each crew member. In this respect, SRBs are an important factor for obtaining a certificate to operate in a certain Member State or river basin.

[22] Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, OJ L. 255, 30.09.2005, p. 22.

[23] UNECE, 'Resolution No. 31 Minimum Requirements for the Issuance of Boatmasters Licenses in Inland Navigation with a view to their Reciprocal Recognition for International Traffic', Doc ECE/TRANS/SC.3/WP.3/2009/8/Rev.1 (18 May 2009).
[24] Danube Commission, 'Recommendations of the Danube Commission on Boatmasters' Licenses', Doc. CD/SES/77/7.
[21]All relevant documents can be found on: http://ec.europa.eu/transport/media/consultations/2013-06-21-inlandnavigqualifications_en.htm
[26] Note that the way some issues are presented might be different in the publication consultation report and in the IAR. For example, as explained under section 2.2. safety is no longer a problem driver but a key element in the analysis of impacts; level of safety has to be maintained (and even possibly improved). In a similar way, language is not considered any more as an individual problem driver but is included in the more global need for 'competence-based standards'. As one of the consequence, 'River Speak' is no longer proposed as an individual measure but remains targeted as a 'communication' competence under the common minimum standards on competence. The specific issue of SRB has been addressed under section 3.3.1.2.
[27] http://ec.europa.eu/transport/modes/inland/promotion/platina_en.htm
[28] see http://www.edinna.eu
[29] Self-governing association of maritime and inland navigation related law enforcement authorities from EU Member States and Switzerland.
[30] The European Inland Waterways Transport Social Partners include EBU (European Barge Union), ESO (European Skippers' Organisation) and ETF (European transport Workers' Federation).
[31] Within PLATINA, the European network of nautical schools (EDINNA) is elaborating Standards for Training and Certification in Inland Navigation (STCIN), similarly to the existing system of Standards for Training and Certification and Watch keeping for Seafarers (STCW) by the international maritime organisation (IMO).
[32] The evaluation of the current framework can be found on:
http://ec.europa.eu/transport/facts-fundings/evaluations/doc/2014-03-evaluation-report-directive-1996-50.pdf
[33] The external impact assessment study can be found on:
http://ec.europa.eu/transport/modes/inland/studies/inland_waterways_en.htm
[34] See Annex 2. Source: Panteia et al (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.10. Figures for 2011. Source Ecorys (2013) updated by Panteia. These employment figures include the owner-operators, part-time and temporary employment in the IWT freight and passenger transport (excluding land-based personnel). From the total mentioned, the Commission has deducted the figures related to ES, DK, LV, SI and CH. It is important to note that these numbers do not include a 'hidden reserve' of personnel who have the necessary sailing licenses, but are not active on a regular basis.
[35] Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, Panteia et al, 2014, p.15.
[36] EU Transport in figures 2014, p.25.
[37] In particular BE, NL, FR and DE.
[38] CCNR, EC, Panteia (2013), Market Observation 2013, p.98.
[39] Study on the costs and benefits of the implementation of the European Agreement on working time in inkand waterway transport – A comparison with the status quo, Ecorys, 2013, p.12.
[40] For the Danube corridor, countries concerned are AT, BG, HU, SK and RO. The Rhine countries are BE, CH, DE, FR and NL. The North-South corridor includes the following river basins: Scheldt, Rhône, Meuse and Seine. In terms of countries, it includes NL, BE and FR. The East-West corridor includes the following river basins: Elbe, Weser and Odra. In terms of countries, it includes NL, DE, PL and CZ.
[41] Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, Panteia et al, 2014, p.66.
[42] The "hidden reserve" is a capacity reserve which consists of persons with the right qualifications but that are available for IWT work on an incidental basis only. This concerns for example persons that are of an age older than 65 years and/or relatives that may provide support in exceptional cases.
43Panteia/PWC(2014),Analysis of the trends and prospects of jobs and working conditions in transport,Annex 13.
[44] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation: technical support for an impact assessment, p 28.
[45] Panteia et al (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.53-57.
[46] CE Delft (2012), Medium & Long Term Perspectives of IWT in the EU, chapters 1, 2 and 3.
[47] CE Delft (2012), Medium & Long Term Perspectives of IWT in the EU and NVB/Erasmus Universiteit (2012), Blue Ports: de onmisbare schakels, p. 11 Conclusion.

[48] EU Industrial Structure Report 2013, Competing in Global Value Chains, See http://ec.europa.eu/enterprise/policies/industrial-competitiveness/competitiveness-analysis/eu-industrial-structure/files/report_euis_2013_final.pdf
[49] Panteia/Nea (2015 – forthcoming), Macro analysis of the market potential in the continental cargo market
[50] Ecorys et al (2014), Danube+20, Job creation scenarios from a 20% increase of IWT on the Danube by 2020 compared to 2010.
[51] HaCon (2014), Rhine-Alp corridor study, p. 17, p.48, p.88-89.
[52] NAIADES II Commission staff working document "Greening the fleet: reducing pollutant emissions in inland waterway transport", SWD(2013) 324 final
[53] As far as the boatmasters are concerned, the focus in this IAR is mainly on the differences between the RNP and Directive 96/50/EC. This is because the Danube Commission and UNECE do not issue binding legal rules, and because the national certificates issued by EU member states that fall out of the scope of Directive 96/50/EC are considered not to affect free navigation in the EU (source: study on the evaluation of the existing legal framework).
[54] Croatia has submitted a request for recognition on 28 November 2013.
[55] Other countries like Portugal, United Kingdom, Italy and Luxembourg do not issue certificates in line with Directive 96/50/EC.
[56] Panteia et al (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.10. Figures for 2011.
[57] See http://www.ccr-zkr.org/12020300-en.html .
[58] See more information on this specific aspect see problem driver 2.
[59] As stipulated in the 7th Protocole to the Mannheim Convention.
[60] Panteia (2014), Evaluation of the relevant directives related to the initiative on recognition and modernisation of professional qualifications in inland navigation (Directives 91/672/EEC and 95/50/EC), p.29-30, p.48.
[61] Susan Farber, Expanding the Potential for Competency-Based Models, See http://www.evolllution.com/
[62] See article 7.13 of RNP.
[63] For example, the Netherlands grants a reduction of only two years to a seafarer on all its waterways. This is based on Dutch regulation: Besluit tot goedkeuring examenreglementen en examenprogramma's voor de binnenvaart 2013. Most of the EU countries outside of the Rhine grant a reduction of three years.
[64] Panteia et al (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.10. From the total mentioned, the Commission has deducted the figures related to ES, DK, LV, SI and CH.
[65] Rhine Regulations, UNECE regulation and Sava Commission regulation.
[66]See Platina competence table for operational level, available under http://www.platina1.naiades.info/platina/downloads
[49] Overview prepared by EDINNA as input for meetings with the Common Expert Group E01036, focused on recognition and modernisation of professional qualifications in inland navigation. This overview was meant to support the discussion and to reach an agreement on the relation between the existing functions and professional qualifications. EDINNA is the educational network of inland waterway navigation schools and training institutes, see http://www.edinna.eu
[68] CCNR (December 2010), 'Administrative Arrangement on the Mutual Recognition of Service Record Books, Strasbourg.
[69] Countries that are not part of the interconnected IWT network but already issue boatmasters certificate in line with Directive 96/50/EC and could therefore more likely consider issuing also other qualifications in line with EU requirements. Note that if we would also add workers from Portugal, Italy and United Kingdom (2848), it is a total of 7,136 operational workers, i.e. 27% of the operational workers within the EU, who do not have their qualification recognised on the Rhine and in other EU member states.
[70] and, under certain conditions, to third country nationals.
[71] ILO working paper, Living and Working Conditions in Inland Navigation in Europe, December 2013.
[72] In December 2015 the bilateral agreements that recognise specific training programmes provided by the training institutes of Decin (CZ) and CERONAV (RO) should enter into force. In view of the different education systems, recognition was only made possible thanks to the use of the STCIN and following a relatively long process. The reference framework allowed the CCNR to indicate the shortcomings in terms of competence and find an agreement on the adjustments to be made to reach CCNR standards. Both Romania and Czech Republic emphasised how important such recognition is for the mobility of their workers and the attractiveness of the profession.
[73] Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report, p.57-58, based on SAB data.
[74] See example for the qualification of boatmen in annex 6.
[75] CCNR awards the function of Able Boatman after successfully finishing an educational program of three years in inland navigation, whilst the Dutch authorities award the function of helmsman.

[76] Only a list of diplomas delivered by specific training centers all located in CCNR member states are recognised by the CCNR
[77] Germany is however less strict regarding lateral inflow, as it generally requires only six months experience in inland navigation.
[78] i.e. 27 boatmasters and 7 operational workers. Source: Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report, p.91-93 based on Nederland Maritiem Land (2012) and Guy Sulpice (2011).
[79] Article 8(2) of Directive 96/50/EC, supra note 4; Article 2.05 of the Rhine Patent Regulation, supra note 5.
[80] Equivalent to 38,525,854,822 tonne kilometres. Data communicated by Panteia to the Commission on 10/12/2014.
[81] Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report, p.106-107. The assumptions, methodology and calculations behind KSS figures and a regional breakdown of the costs can be found in pages 100-110 of the report.
[82] In total, € 2,613,661 of extra costs are made on the Danube due to pilotage. On the Rhine, this figure equals € 2,990,652. Also the Maritime Seine has got a large contribution to pilotage costs: € 2,058,778 .
[83] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 118-119
[84] In the aftermath of 2004 EU enlargement, the possibility to recognize non CCNR document was given by the entry into force in December 2004 of the additional Protocol No. 7 to the Mannheim Convention.
[85] CCNR (December 2010), Administrative Arrangement on the Mutual Recognition of Service Record Books, Strasbourg.
[86] Administrative Arrangement concerning a Framework for Cooperation between the Secretariat of the Central Commission for the Navigation of the Rhine and the Directorate-General for Mobility and Transport of the European Commission (2013). See http://ec.europa.eu/transport/modes/inland/doc/2013-05-22-rhine.pdf
[87] CESNI (Comité Européen pour l'élaboration des standards pour la navigation intérieure) has been created on 3 July 2015.
[88] Commission proposal of 10 September 2013, which aims at repealing Directive 2006/87/EC.
[89] Social partners' position on professional qualifications and training standards for crew members on inland waterways transport vessels, September 2013.
[90] Within PLATINA, the European network of nautical schools (EDINNA) is elaborating Standards for Training and Certification in Inland Navigation (STCIN), similarly to the existing system of Standards for Training and Certification and Watch keeping for Seafarers (STCW) by the international maritime organisation (IMO).
[91] NEA et al (2011), Medium and Long Term Perspectives of IWT in the European Union. *p.21" f*or an estimation of the forecasted IWT performance in the EU up to 2040. It is consistent with the 2013 EU Reference Scenario (http://ec.europa.eu/transport/media/publications/doc/trends-to-2050-update-2013.pdf)
[92] Idem.
[93] Regarding boatmasters, the ageing is more significant in BE, FR and DE (with majority that will retire within 10-20 years). As far operational workers are concerned, ageing is an issue for BE and DE but not for FR and NL that have an age curve below the EU average. Source: CCNR, EC, Panteia (2014), Market Observation 2014, p.97-98.
[94] The demand for workers has been estimated in relation to the total number of vessels (and the amount of cargo transported) and the manning requirements. Assumptions used to determine the supply of workers are based on expert judgements from the external consultant.
[95] As in the calculations the lateral in/outflow has not been taken into account, it is not possible to exactly predict how large the gaps exactly are. Furthermore, it must be noted that the "hidden reserve" can be used but is not integrated in the supply/demand model.
[96] Council Directive 2014/112/EU of 19 December 2014 implementing the European Agreement concerning certain aspects of the organisation of working time in inland waterway transport, concluded by the European Barge Union (EBU), the European Skippers Organisation (ESO) and the European Transport Workers' Federation (ETF) Text with EEA relevance , OJ L 367, 23.12.2014, p. 86–95.
[97] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 71.
[98] NEA et al (2011), Medium and Long Term Perspectives of IWT in the European Union, p.21.
[99] Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report, p.105.
[100] With a number of KSS remaining identical.
[101] The assumptions, methodology and calculations behind these figures can be found in Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 100-110.

[102]Though RNP mentions a possible maximum reduction of 3 years under article 7.01. Appendix 1 to the instructions for the services mentions in practice a maximum of 2 years. See http://www.ccr-zkr.org/files/documents/reglementSTF/stf2_122013_fr.pdf

[103]Under Directive 96/50/EC, medical check-up is foreseen at minimum every year after 65 years old. Under RNP every 5 years between 50-65, yearly after 65 years old. Based on a study, a "Dutch proposal" has been put forward i.e. medical checks at 60, 65 and 70 and thereafter every two years. When the IAR refers to the "new proposed frequency", it refers to that proposed measure.

[104] Measures 5 and 6 are rather to be seen as alternatives as these are two different ways aimed at facilitating mutual recognition of qualifications. The two measures/instruments target similar population, both in terms of scope (crew) and voluntary Member States. Analysis of impacts of these measures will therefore be very similar as shown under section 6. Nevertheless, it should be noted that it is possible that the two measures co-exist in a limited way. In particular if the sector would opt for measure 6 it is likely that a number of CCNR arrangements would remain/be needed to cover countries or limited aspects not covered by CTT/CTF. This would of course add a certain legal and administrative complexity compared to BAU.

[105] Directive 2013/55/EU sets the conditions for CTT/CTFs adoption and of their potential scope. CTT/CTFs are introduced by delegated acts of the Commission. The Directive clearly provides that Member States may, under certain conditions, opt out of the delegated act. It is not legally possible for a delegated act by the Commission to deny Member States a right that they enjoy under the Directive itself and which is not conditional upon a decision of the Commission.

[106] Full application of measures 5 and 6 together does not make sense (see footnote 96). For the sake of simplification they are however integrated in the same option.

[107] Susan Farber, Expanding the Potential for Competency-Based Models, See http://www.evolllution.com/

108 Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning, OJ C 111, 6.5.2008. http://www.eqavet.eu/gns/policy-context/european-vet-initiatives/european-qualifications-framework.aspx.

[109] COM(2013) 623 final

[110] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, Final report, p. 45-46. Ranging from a decrease of 2 workers in case of alignment with existing CCNR standards, to an increase of respectively 2-4 and 6-9 workers in case alignment on Directive 96/50/EC or new frequency.

[111] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, Appendix 5 as adjusted by the Commission.

[112] Boatmasters still need to prove knowledge of specific situations on the Rhine.

[113] 657 boatmasters from France + 20 from Croatia - 19 French boatmasters that have a Rhine patent. This results in 658 boatmasters that have more difficulties to be accepted the Rhine. Note, that French boatmasters are allowed on the Rhine too if they possess a Directive 96/50/EC license and can prove at least 4 years (720 days under CCNR system instead of 400 under the French system) of navigation experience.

[114] see: http://www.ccr-zkr.org/12020300-en.html Putting the issue of KSS apart, all boatmasters have additional conditions to fulfil with the exception of those from DE.

[115] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 45-46

[116] Ibidem.

[117] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, Appendix 4.

[118] Percentage based on figures from CCNR, EC, Panteia (2014), Market observation 2014, p.95.

[119] In 2013, STC Group organised exams for 32 applicants at boatman level and for 7 candidates at boatmaster level. "Onderwijscentrum Binnenvaart" reported that 54 applicants passed the boatman practical exam program in 2013 and that, for the first half of 2014 they had an average of 8 applicants a month. In June 2014, they also reported 10 candidates enrolled for the practical exam at boatmaster level.

[120] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 120.

[121] Idem, p.115.

[122] Idem p.65-67

[123] Panteia (2015), Addendum, complementary figures on safety impact in the context of the technical support for the impact assessment on the recognition of professional qualifications in inland navigation.

[124] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p.74-75.

[125] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, Appendix 4.

[126] PLATINA 1 D3.8, Strategy for harmonized IWT education and training standards, Annex II (BDB, 2010)

[127] European Parliament (2009), Indicators of job quality in the European Union.

[128] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 39-42.
[129] Idem, p. 47-49.
[130] Idem, p. 58-60.
[131] Investment costs are considered as upfront costs necessary to implement a measure.
[132] The figures shown in the table as administrative costs for boatmaster practical exam represent average costs between estimates in case exam has to be carried out on a dedicated training ship that needs to be chartered for a day or in case the candidate uses his own. Source: Panteia (2015), Addendum, complementary figures to Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment.
[133] The figures shown in the table as administrative costs for boatmaster practical exam represent average costs between two averages: 1) for the scenario where the MS would opt putting an assessment only through a theoretical exam and 2) for a combination of both theoretical and practical exams. In each case, several options including various form of exams have been taken into account. Source: Panteia (2015), Addendum, complementary figures to Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment.
[134] Panteia et al (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.11.
[135] Market observation 2013, CCNR-EC-Panteia, based on Dutch Central Bureau of Statistics, p.102.
[136] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment.
[137] Impact on different regions has not been inserted as by its nature it cannot be expressed in one single trend.
[138] http://www.eqavet.eu/gns/policy-context/european-vet-initiatives/european-qualifications-framework.aspx
[139] The difficulty to specify suitable core indicators for monitoring, in particular to monitor the impacts of the initiative on labour mobility and the filling of the demand supply gap of IWT workers, should be noted. As explained in the introduction of section 6 (analysis of impact), this is due to the existing situation where the availability of specific data for IWT us very limited. Quantitative monitoring is therefore focussed on measurable outcomes expected to result from the future implementation of the initiative.

EUROPEAN
COMMISSION

Brussels, 18.2.2016
SWD(2016) 35 final

PART 2/2

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

Proposal for a Directive of the European Parliament and of the Council

on the recognition of professional qualifications in inland navigation and repealing Council Directive 91/672/EEC and Council Directive 96/50/EC

{COM(2016) 82 final}
{SWD(2016) 36 final}

LIST OF ANNEXES

Annex 1:

Online public consultation: summary of the stakeholders' view

INTRODUCTION

In the context of the impact assessment accompanying a potential legislative proposal on the recognition and modernisation of professional qualifications in inland navigation, the Commission services have conducted an online public stakeholder consultation. The goal of the potential initiative is the removal of barriers between EU Member States for exercising professions in the field of inland navigation, thus subscribing to the main goal of the European Commission's common transport policy of the free movement of persons and goods across the EU. The harmonisation of national legal and administrative regulations is of high importance for creating fair conditions for competition within and between the different transport modes[1]. The aim of this public online consultation was to collect the stakeholders' views in order to have their opinion on the identified problems and policy objectives and to assess their support to the proposed policy measures.

The public consultation was open for 13 weeks (26/03/2013 to 21/06/2013), and it contained a total of 90 questions, both quantitative and qualitative. The Commission services received a total of 94 replies. This note follows the structure of the consultation document and provides a summary of the nature of responses of different stakeholders. It is important to note that the sample of respondents is not statistically representative, and thus results should be interpreted with caution.

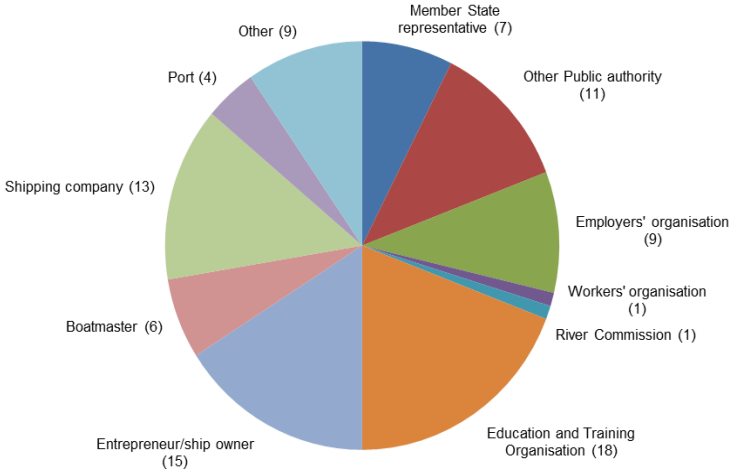
1. IDENTIFICATION OF THE RESPONDENTS

1.1 Overall breakdown of consultation respondents by stakeholder type

The Commission services received a total of 94 contributions. 10 stakeholder groups (divided by organisation type)[2] were represented among the respondents. Education and training organisations were the largest participating group, with 18 responses, followed by entrepreneurs/ship owners (15) and shipping companies (13). Public authorities account for a total of 17 responses, divided between Member State representatives (7) and other public authorities (10). The other categories had relatively few respondents (see graph below).
The graphs accompanying each section of this report indicate the proportions of each category of respondents that gave a certain answer. Given the low number of responses received from workers' organisations (1), river commissions (1)[3] and ports (4), these categories will not be included in the graphs throughout the report, but will be qualitatively assessed and referred to in the text when appropriate.

[1] See the background document for more information.
[2] Please note that opinions expressed do not always represent the position of an organisation (e.g. training institute), but sometimes only the view of the person who responded to the public consultation. For the purpose of data analysis, these contributions have nevertheless been considered as opinions expressed by a member of the stakeholder's group to which the organisation they work for belongs.
[3] The river commission participating in the public consultation was the Danube Commission.

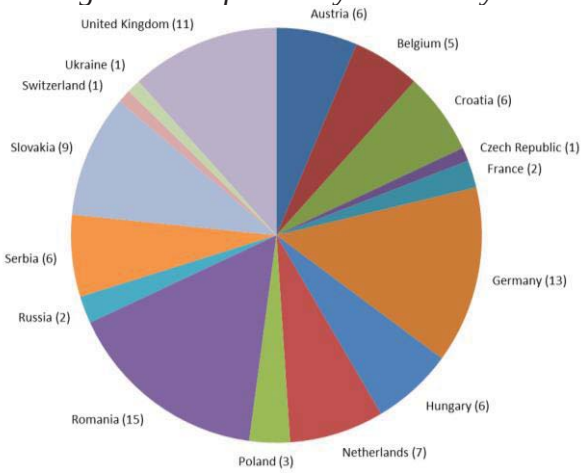
Figure 1. Consultation respondents by stakeholder type



1.2 Overall summary of responses by nationality

The responses came from a total of 16 countries. Romania (15), Germany (13), the United Kingdom (11) and Slovakia (9) account for the largest number of respondents, followed by the Netherlands (7), Hungary (6), Austria (6), Croatia (6) and Belgium (5).

Figure 2. Responses by nationality



1.3. Specific geographical range(s) for which stakeholders have experience

Figure 3 presents the geographical ranges for which the respondents to the public consultation have experience. The information provided reflects that a lot of respondents have experience in multiple river basins. 47 stakeholders have experience in the Danube and Sava Basin, 38 have it for the Rhine basin and 30 for the Moselle Basin.

Figure 3. Respondents by geographical range of experience

Category	Number
Rhine Basin	38
Moselle Basin	30

Danube and Sava Basin	47
Scheld and Meuse Basin	15
Elbe Basin	12
Other French waterways	6
Other German waterways	21
Other Dutch waterways	16
Oder Basin	7
Inland waterways of maritime character	28
Others	19
Total	**239**

2. Problems to be addressed

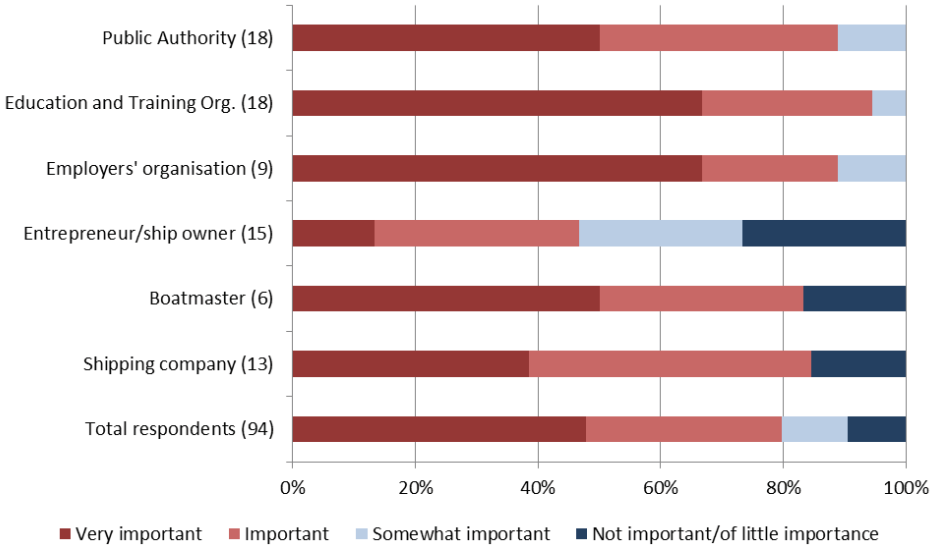
In this section of the public consultation, the European Commission sought to understand to which extent stakeholders agree with the existence of the pre-identified problems regarding the recognition of professional qualifications and training standards in inland navigation and to identify other problems that would need to be taken into account.

2.1. Is the problem of restricted labour mobility relevant?

Almost 80% of all respondents rated the problem of restricted labour mobility derived from the differences between countries in professional qualifications and training standards in inland navigation as "important" or "very important". Education and training organisations are the group that rates it as most important (95%), followed by public authorities and employers' organisations (around 89% each). Entrepreneurs/ship owners present a more dispersed distribution of responses, with almost 50% of the respondents considering the labour mobility restrictions as "very important" or "important".

Figure 4. Relevance of the problem of restricted labour mobility by stakeholder type[4]

[4] This graph shows the distribution of answers given by each category of stakeholder, allowing the reader to compare the answers provided by different groups of stakeholders. At the same time, the vertical axis presents the number of respondents in each category (e.g. 18 public authorities). The last category of the graph (i.e. "total respondents") includes the ones presented in the categories above, and also the answers of four ports, one river commission, a workers 'organisation and nine responses classified as "others". This type of graph will be used throughout the report.

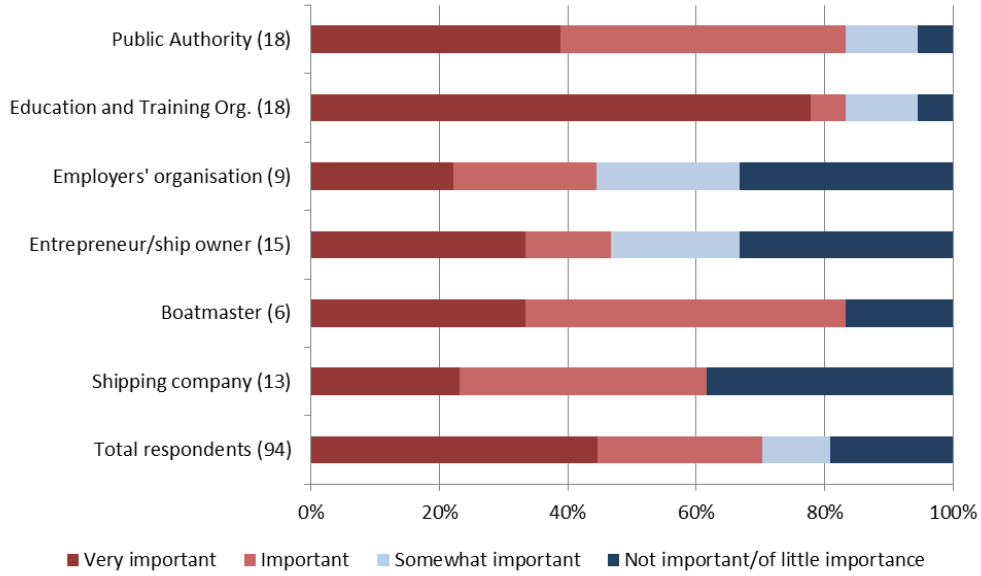


The river commission and the worker's organisation that contributed to the public consultation rated this problem as highly important. The four ports provided responses that range from "somewhat important" to "very important".

2.2. Is the problem of safety relevant?

Around 70% of all respondents consider that safety problems derived from the differences between countries in professional qualifications and training standards in inland navigation are "important" or "very important". Nevertheless, responses vary by group of stakeholder: whereas 83% of public authorities, boatmasters and education and training organisations consider this problem as "very important" or "important", the percentage is of around 45% for entrepreneurs/ship owners and employers' organisations. Despite this, it is important to note that more than 60% of respondents of each group of stakeholders consider this problem at least "somewhat important".

Figure 5. Relevance of the problem of safety by stakeholder type



3. Problem drivers

3.1. Problem of Restricted Labour Mobility: Overall perception of relevance of different problem drivers

This section presents the overall perception of the relative importance of different drivers to the problem of restricted labour mobility. It is important to note that these are the aggregated responses of all stakeholders. Disaggregation by type of stakeholder is found in the following section 3.2.

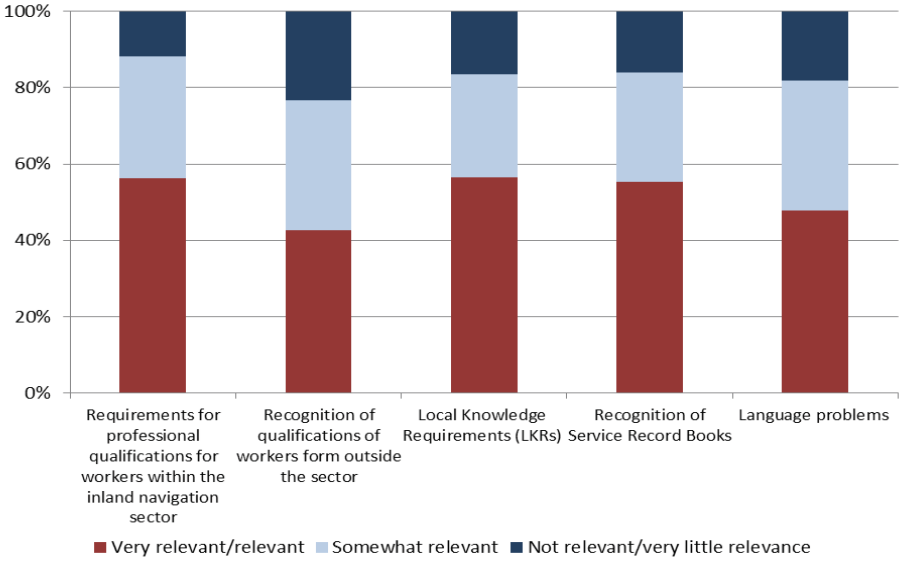
As shown in *Figure 6*, difficulties due to different requirements for professional qualifications of workers within the inland navigation sector (56%) and the difficulties with the recognition by national authorities of service record books (SRBs) or of the information contained in the SRBs (55%) are in relative terms considered the aspects contributing the most to the problem of restricted labour mobility. Around 50% of all respondents find that local knowledge requirements (LKRs) preventing boatmasters to operate on a certain stretch (51%) and language problems preventing crew members of different nationalities to perform duties on vessels sailing on the EU inland waters (48%) are "relevant" or "very relevant" problem drivers. Finally, difficulties with the recognition of relevant professional qualifications of workers from outside the sector are considered as the least important problem driver in relative terms (43% rating it "very relevant" or "relevant").

The stakeholders were asked to assess the **current system of mutual recognition of Service Record Books operated through multilateral agreements between the CCNR and a number of non-Rhine EU Member States**. 40% of the respondents stated that this system serves its purpose only partially, 21% consider that it does not serve its purpose and only 13% of them consider that it serves its purpose fully.

When asked whether the **current system of mutual recognition of boatmasters certificates** adequately addresses the labour mobility barriers for boatmasters from the Non-Rhine EU Member States on the Rhine, 45% of the respondents say that mobility

barriers are only partially addressed, 26% think that they are not adequately addressed, and only 12% consider that they are fully addressed through this system.

Figure 6. Relevance of different problem drivers to the problem of restricted labour mobility

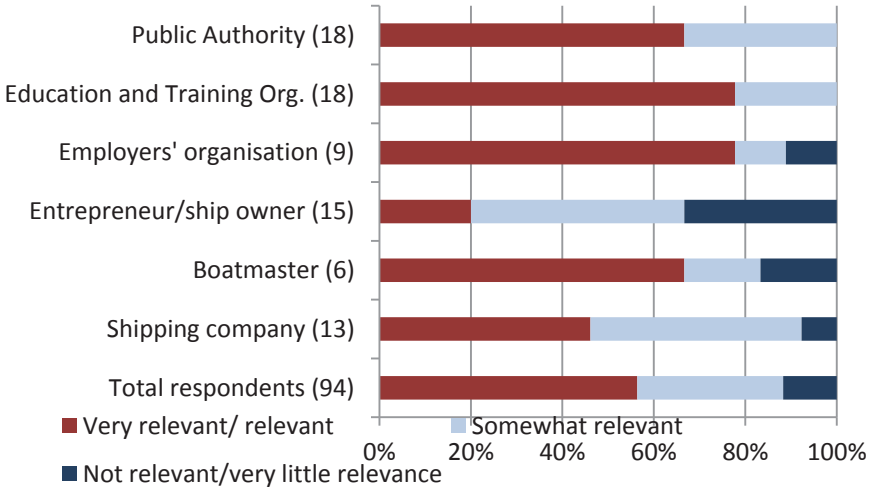


3.2. Relevance of different problem drivers by type of stakeholder

3.2.1. Problem driver 1: Difficulties due to different requirements for professional qualifications of workers within the inland navigation sector (requirements for experience, exam programmes, physical and mental fitness)

Around 78% of education and training organisations and employers' organisations that responded to the public consultation consider this problem driver as highly relevant, followed by around 67% of boatmasters and public authorities, and 46% of shipping companies. Most entrepreneurs/ship owners rated it as "somewhat relevant" (47%).

Figure 7. Relevance of problem driver 1 (different requirements for professional qualifications) by type of stakeholder

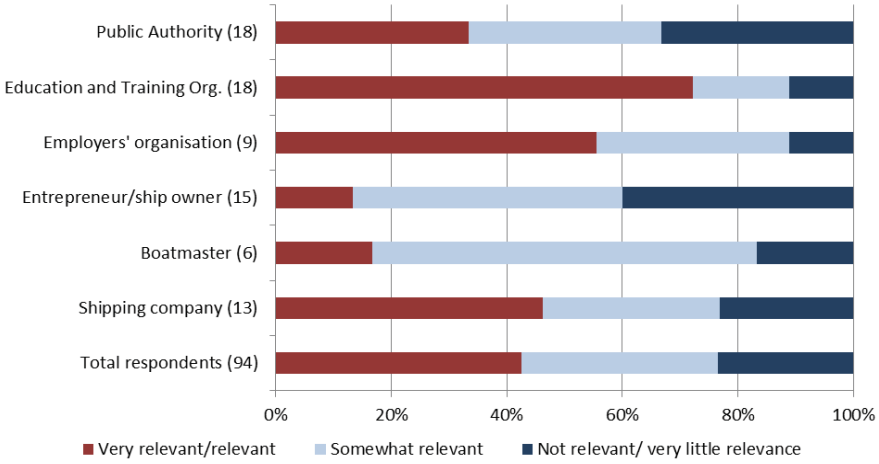


Additionally, the river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas three out of four ports rated it as "somewhat important". It is important to note that only 11% of the total number of respondents finds this problem driver as "not relevant" or of "little relevance".

3.2.2. Problem driver 2: Difficulties with recognition of relevant professional qualifications of workers from outside the sector (such as the maritime or fishing sector)

The distribution of responses with regard to the second problem driver differs substantially by group of stakeholder. An important percentage of education and training organisations (72%) and employers' organisations (56%) consider it a highly relevant problem, followed by shipping companies (46%). All the other groups consider it mainly "somewhat relevant", in particular boatmasters (67%). Around 67% of public authorities and 60% entrepreneurs/ship owners consider it at least "somewhat relevant".

Figure 8. Relevance of problem driver 2 (recognition of qualifications of workers from outside the sector) by type of stakeholder



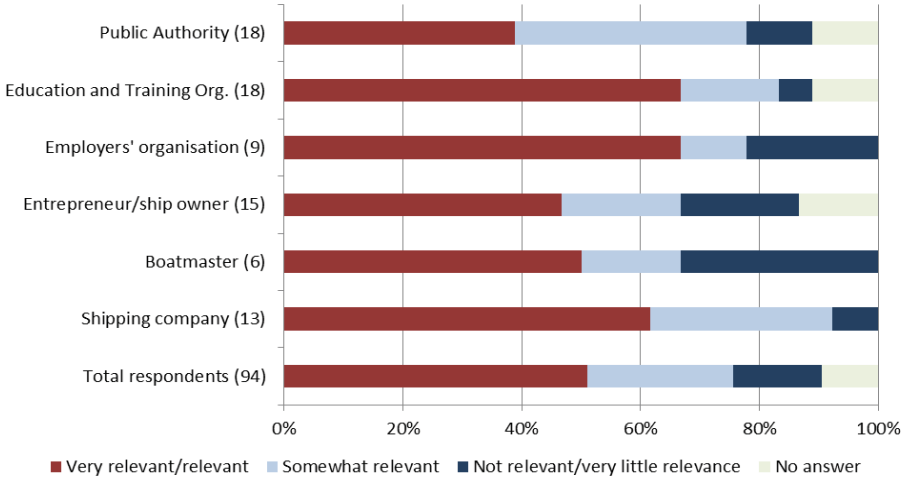
The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas three out of four ports rated it as "somewhat important".

3.2.3. Problem driver 3: Local Knowledge Requirements (LKRs) may prevent boatmasters to operate on a certain stretch (relevant for boatmasters only)

Perceptions of the relevance of this problem driver vary between types of stakeholders, as shown in *Figure 9*. Education and training organisations and employers' organisations are the groups that consider it more important, with 67% of their respondents rating it as highly relevant, followed by shipping companies (62%). At the same time, entrepreneurs/ship owners and boatmasters are the groups of stakeholders that perceive this problem driver as less relevant, in relative terms, with 67% of their respondents rating it as highly important or somewhat important. With regards to public authorities, it should be noted that despite presenting a relatively low percentage of "highly relevant" responses, only 11% of them consider the issues with LKRs of no relevance. Additionally, the river commission and the

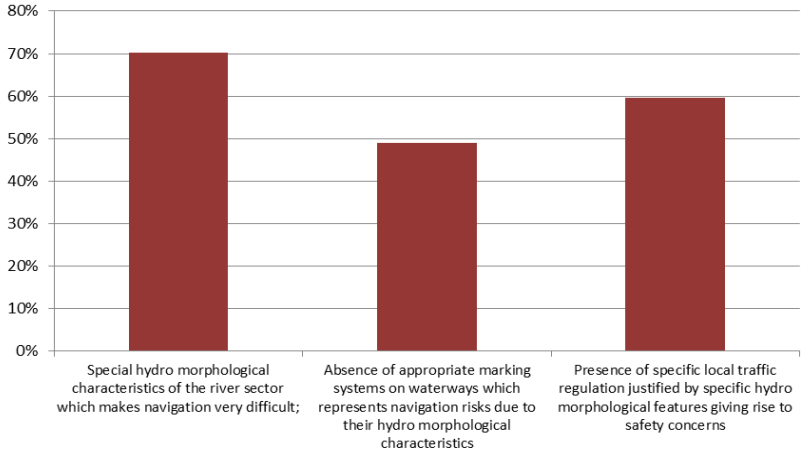
worker's organisation that contributed to the public consultation consider this problem driver as highly relevant.

Figure 9. Relevance of problem driver 3 (Local Knowledge Requirements) by type of stakeholder



The public consultation also asked the stakeholders about the justification of local knowledge requirements. As shown in *Figure 10*, 70% of the respondents consider that LKRs are justified when there are some special hydro morphological characteristics of the river sector which make navigation very difficult; 60% of them consider they are justified when there are specific local traffic regulations in place due to safety concerns, and 49% of them refer to the absence of appropriate marking systems.

Figure 10. Criteria for the establishment of Local Knowledge Requirements[5]



[5] This graph shows the percentage of stakeholders that consider each of these criteria relevant for the establishment of LKRs. It has to be taken into account that more than one response was allowed.

When asked about whether the LKRs which are currently in force in Member States are justified in view of the criteria referred to above (hydro morphological characteristics, absence of marking systems, local traffic regulations), the responses provided were the following:

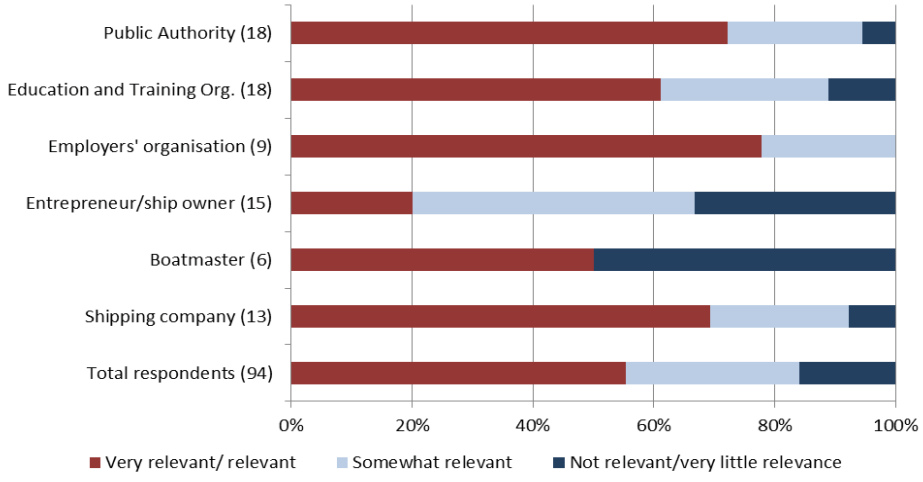
Figure 11. Justification of the currently enforced LKRs[6]

Answer	Number
The currently enforced LKRs are **fully justified** in view of the criteria mentioned	38
The currently enforced LKRs are **partially justified** in view of the criteria mentioned	30
The currently enforced LKRs are **not justified** in view of the criteria mentioned	47
Don't Know	15
Total	**94**

3.2.4. Problem driver 4: Difficulties with the recognition by national authorities in the Member States of Service Record Books (SRBs) or of the information contained in the SRBs

The difficulties with the recognition of SRBs are considered by 78% of employers' organisations responding to the public consultation as "relevant" or "very relevant" drivers to the problem of restricted labour mobility. A slightly lower percentage is registered for public authorities and shipping companies (around 70% in each case). Entrepreneurs/ship owners are the group of stakeholders that registers a lower percentage of "highly relevant" responses (20%). Despite this, it is important to note that 67% of them consider it either "somewhat relevant" or "highly relevant". Boatmasters present a divided position: half of the respondents consider it very relevant, whereas the other half consider it of little relevance.

Figure 12. Relevance of problem driver 4 (recognition of Service Record Books) by type of stakeholder



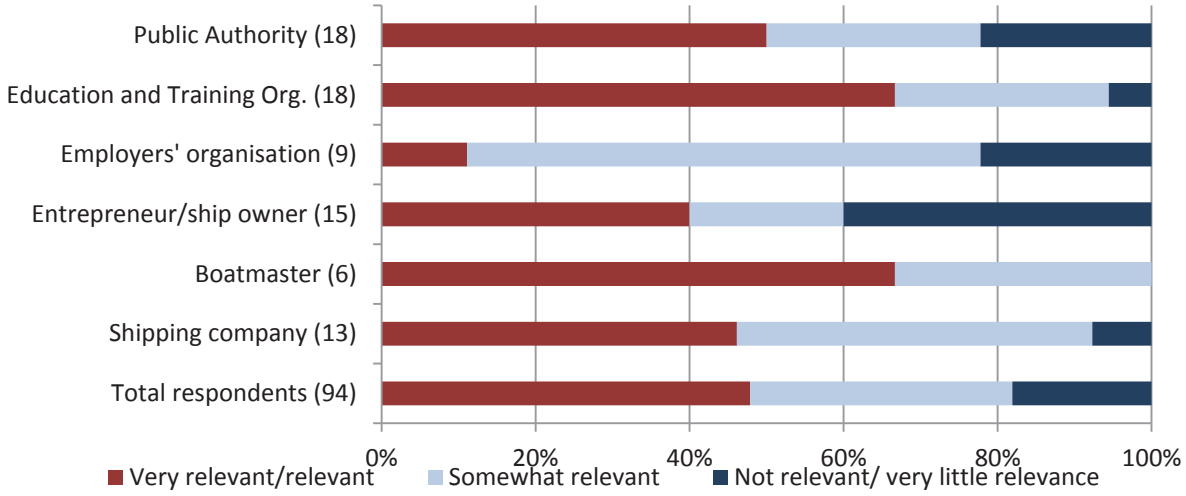
[6] This graph shows the number of stakeholders that gave each response.

The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as "very relevant" or "relevant", whereas three out of four ports rated it as "somewhat relevant".

3.2.5. Problem driver 5: Language problems prevent crew members of a different nationality to perform duties on vessels sailing on the EU inland waterways

Language problems are considered a relevant barrier to labour mobility in inland navigation by education and training organisations and by boatmasters (67% each), while it is considered as "somewhat relevant" by most employers' organisations responding to the consultation (67%). Public authorities, shipping companies and entrepreneurs/ship owners have an intermediate position, with around 40-50% of them rating language problems as highly relevant.

Figure 13. Relevance of problem driver 5 (language problems) by type of stakeholder



Furthermore, the river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas the ports present a more dispersed opinion. In total, 80% of the respondents consider language problems as somewhat relevant to very relevant with regard to labour mobility issues.

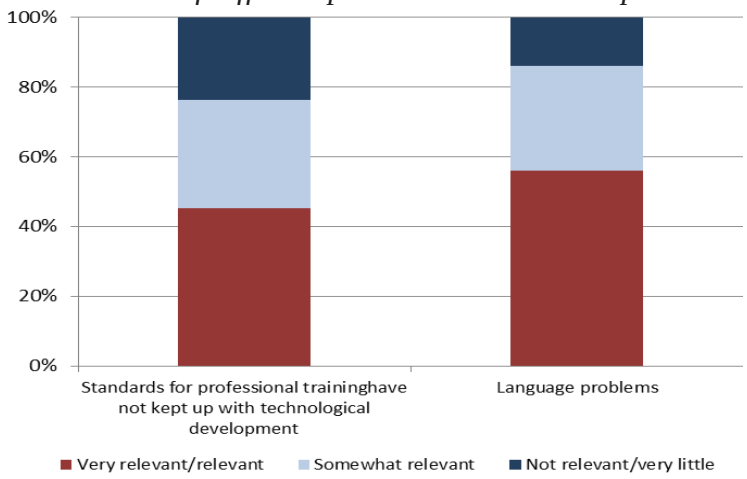
3.3. Safety problem: Overall perception of relevance of different problem drivers

This section presents the overall perception of all stakeholders of the relative importance of different problem drivers to the problem of safety. In order to do this, the responses "relevant" and "very relevant" were aggregated. Responses by type of stakeholder are found in the following section 3.4.

As shown in *Figure 14*, language problems caused by crew members of different nationalities resulting in communication problems is, in relative terms, considered the aspect contributing the most to the problem of safety (85% of the respondents considering it either highly relevant

or somewhat relevant). Around 76% of all respondents find that the standards for professional training in inland navigation which are set at national level have not kept up with technological development, making it a highly relevant or somewhat relevant problem driver.

Figure 14. Relevance of different problem drivers to the problem of safety

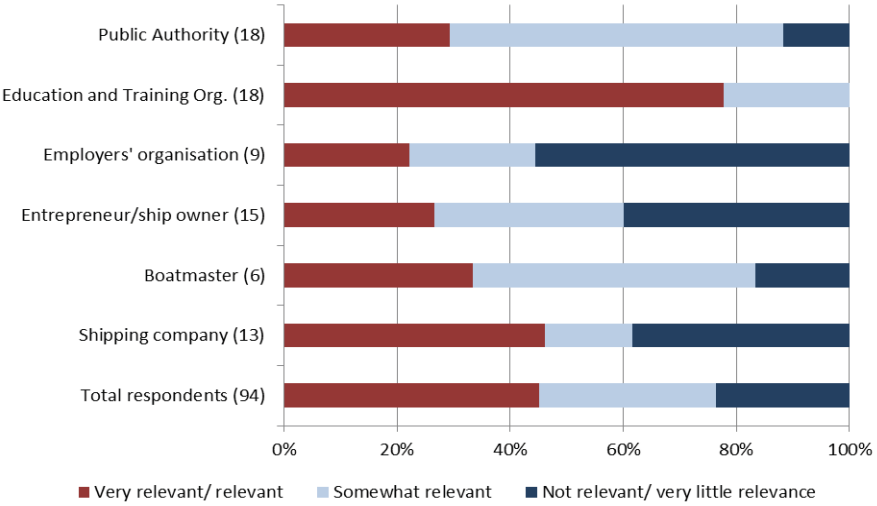


3.4. Relevance of problem drivers by type of stakeholder

3.4.1. Problem driver 1: The standards for professional training in inland navigation which are set at national level have not kept up with technological development

The importance of this problem driver is perceived by the different groups of stakeholders as relatively lower with respect to others, with the exception of education and training organisations, with 78% of its respondents rating it as "relevant" or "very relevant". Despite this, more than 60% of the respondents of each group of stakeholders consider it, at least, "somewhat important", reaching 83% in the case of public authorities and boatmasters. Employers' organisations and entrepreneurs/ship owners are the groups that consider it less important, in relative terms.

Figure 15. Relevance of problem driver 1 (standards for professional training have not kept up with technological development) by type of stakeholder

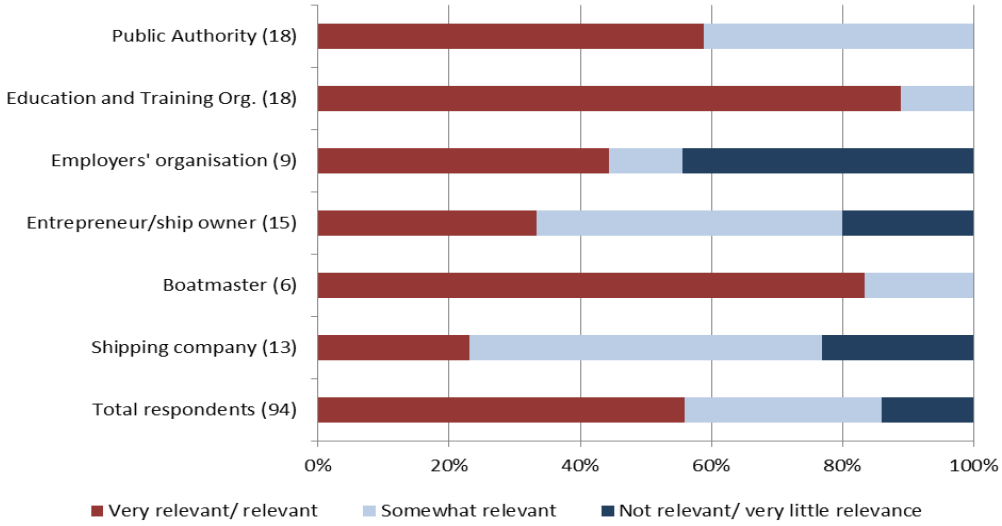


The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas the responses of the four ports range from "somewhat relevant" to "very relevant". In total, 75% of the respondents consider language problems as somewhat relevant to very relevant with regard to safety issues.

3.4.2. Problem driver 2: Language problems caused by crew members of different nationalities, resulting in communication problems

The perception of the importance of language problems for safety differs between groups of stakeholders. Whereas education and training organisations and boatmasters rate it as highly relevant (89% and 83% respectively), shipping companies and entrepreneurs/ship owners find it relatively less relevant. Despite this, almost 80% of both groups consider it either highly relevant or somewhat relevant. As shown in *Figure 16*, the opinion of employers' organisations is the most polarized.

Figure 16. Relevance of problem driver 2 (language problems) by type of stakeholder



The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant.

4. Assessment of policy objectives

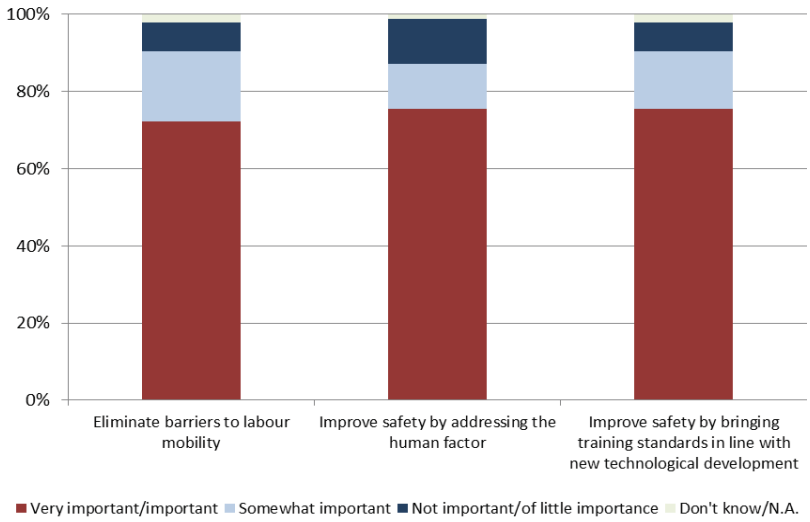
In this section of the public consultation, the Commission sought to identify the degree to which Member States and stakeholders agree with the proposed objectives of the future initiative.

4.1. Overall perception of relevance of different policy objectives

This section presents the overall perception of all stakeholders of the relative importance of different policy objectives of the future initiative regarding the recognition and modernisation of professional qualifications in inland navigation. Responses by type of stakeholder are found in section 4.2. As shown in *Figure 17*, the three policy objectives (eliminate barriers to

labour mobility and improve safety both by addressing the human factor and by bringing training standards in line with new technological development) are considered equally relevant, with around 75% of respondents considering them "very important" or "important". Overall, less than 10% of respondents consider the different policy objectives as not important.

Figure 17. Relevance of different policy objectives

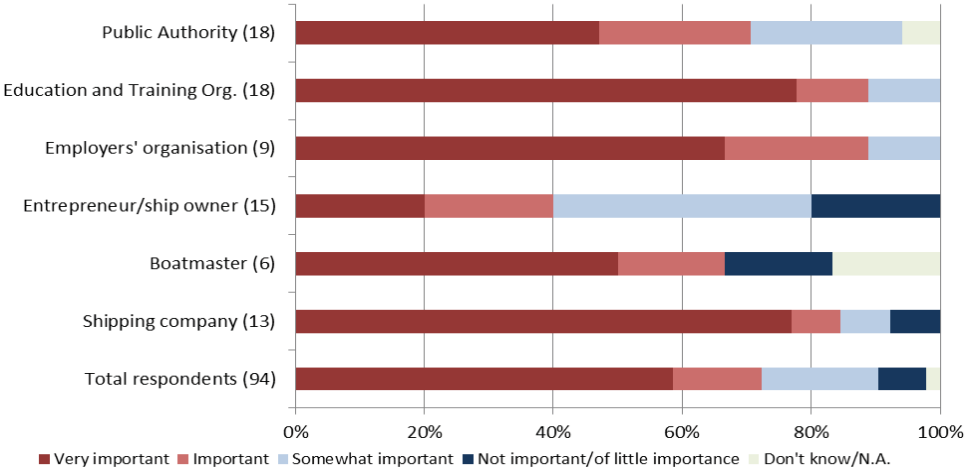


4.2. Relevance of policy objectives by type of stakeholder

4.2.1. Policy objective 1: Eliminate barriers to labour mobility

An important percentage of education and training organisations (89%), employers' organisations (89%), shipping companies (84%), public authorities (71%) and boatmasters (67%) consider this policy objective as "very important" or "important". Entrepreneurs/ship owners present a more dispersed opinion, with 40% of them considering it "somewhat important" and 20% of them stating that it is not an important objective.

Figure 18. Relevance of policy objective 1 by type of stakeholder

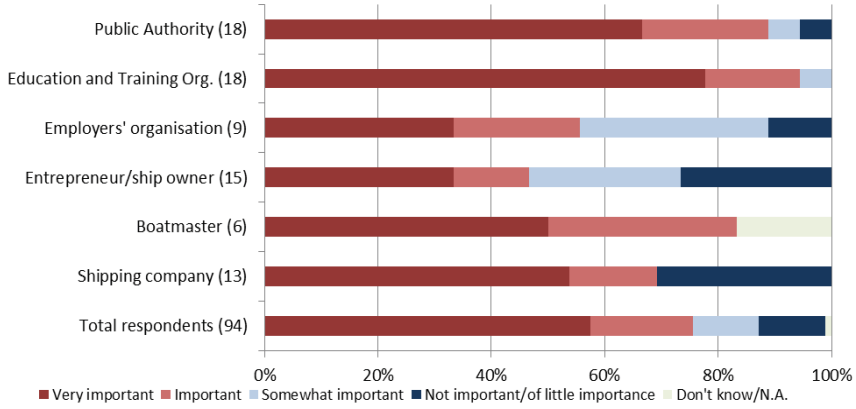


The river commission and the worker's organisation that contributed to the public consultation rated this policy objective as "very important", whereas the responses of the four ports range from "somewhat important" to "very important". As shown in *Figure 18*, the overall support to this policy objective is very high, with only 7% of total respondents considering it not important.

4.2.2. Policy objective 2: Improve safety in the IWT sector by addressing the human factor

With regards to policy objective 2, responses differ considerably between groups of stakeholders. Education and training organisations and public authorities consider that addressing the human factor to improve safety is a highly important objective (with 94% and 89% of them, respectively, stating that it is "very important" or "important"). The groups that in relative terms consider this objective as less important are entrepreneurs/ship owners and employers' organisations.

Figure 19. Relevance of policy objective 2 by type of stakeholder

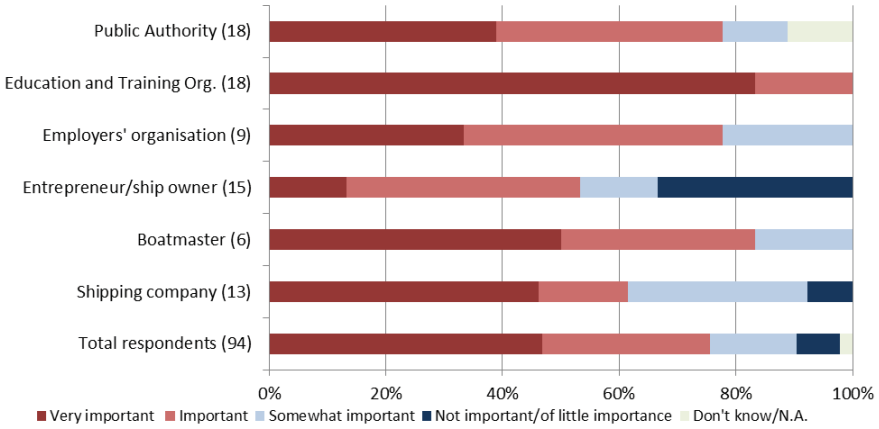


The river commission and the worker's organisation that contributed to the public consultation rated this policy objective as very important, whereas the responses of the four ports range from "somewhat important" to "very important".

4.2.3. Policy objective 3: Improve safety in the IWT sector by bringing training standards in line with new technological development

As shown in *Figure 20*, the support to this policy objective is high in almost all groups of stakeholders, with only 7% of total respondents considering it not important. All education and training organisations participating in the public consultation consider it either "very important" or "important", whereas the percentages are of 83% in the case of boatmasters and of 78% in the case of public authorities and employers' organisations. Moreover, more than 50% of entrepreneurs/ship owners and shipping companies find it highly relevant, a percentage that increases notably if responses "somewhat relevant" are also aggregated.

Figure 20. Relevance of policy objective 3 by type of stakeholder



The worker's organisation that contributed to the public consultation rated this policy objective as "very important", the river commission considers it "important" and the responses of the four ports range from "somewhat important" to "very important".

5. Assessment of policy options

The European Commission has identified a number of possible policy measures that may address the problem areas referred to above. The results presented in this section reflect the opinions of the different stakeholders with regards to the suitability of the different measures.

PROBLEM OF RESTRICTED LABOUR MOBILITY
Problem driver 1: Different requirements for professional qualifications of workers within the inland navigation sector
Policy measure 1: Extension of the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in SRBs
Policy measure 2: Introduction of mandatory harmonised requirements for age and physical and mental fitness for all crew members
Policy measure 3: Harmonisation of definitions of certain professional qualifications in inland navigation and mandatory harmonised requirements for these qualifications
Policy measure 4: Harmonised EU minimum training standards for professional qualifications in IWT
Policy measure 5: Introduction at EU level of a central register for EU boatmaster certificates
Policy measure 6: Introduction of voluntary measures from the inland navigation sector towards lowering labour mobility obstacles
Problem driver 2: Different requirements for professional qualifications for workers from outside the sector
Policy measure 7: Introduction of a common method for lowering the barriers for maritime sailing time/experience to qualify as inland navigation sailing time/experience
Problem driver 3: LKRs potentially preventing boatmasters to operate on a certain stretch of a river
Policy measure 8: Introduction of mandatory common criteria for establishing LKRs in the EU
Policy measure 9: Harmonisation of competency/examination requirements for LKRs

Policy measure 10: Introduction of non-binding recommendations regarding criteria for establishing LKRs in the EU
Policy measure 11: Introduction of non-binding recommendations regarding criteria for examination requirements for LKRs
Problem driver 4: Difficulty of extracting reliable information from SRBs needed for workers to prove their professional qualifications in order to allow operating in another country or other river basin
Policy measure 12: Introduction of a mandatory electronic SRB and a central register for e-SRB
Problem driver 5: Language problems preventing crew members of a different nationality to perform duties on vessels sailing on the EU inland waterways
Policy measure 13: Introduction of River Speak

PROBLEM OF SAFETY
Problem driver 1: Standards for professional training in inland navigation have not kept up with technological development
Policy measure 14: Harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation
Policy measure 15: Introduction of voluntary measures from the inland navigation sector towards improving safety
Problem driver 2: Language problems, caused by crew members of different nationalities, resulting in communication problems
Policy measure 13: Introduction of River Speak

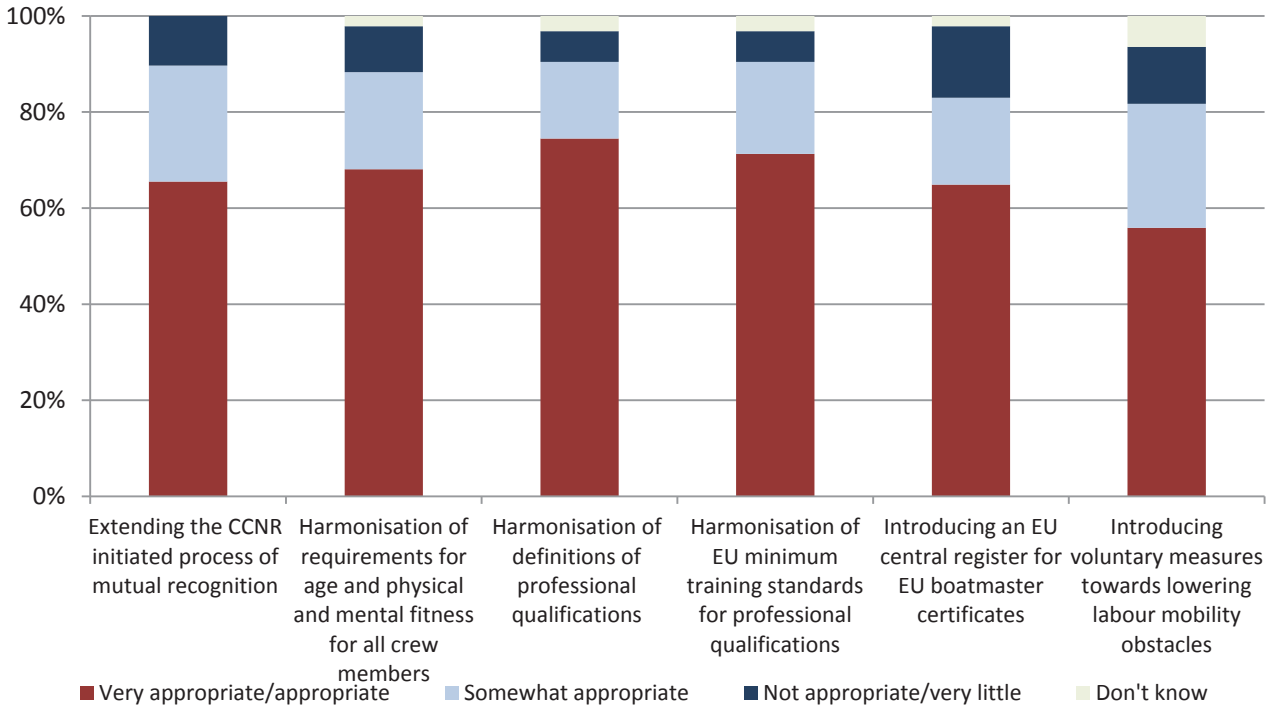
PROBLEM OF RESTRICTED LABOUR MOBILITY

5.1 Overall perception of relevance of different policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector

This section presents the overall perception of the relative suitability of different policy measures to deal with the problem of restricted labour mobility. It is important to note that these are the aggregated responses of all stakeholders. Disaggregation by type of stakeholder is found in section 5.2.

As shown in *Figure 21*, the harmonisation of definitions for certain professional qualifications in inland navigation and mandatory harmonized requirements for these qualifications (74%) and the harmonisation of EU minimum training standards for professional qualifications in inland navigation (71%) are, in relative terms, considered the most adequate policy measures, followed by the mandatory harmonisation of requirements for age and physical and mental fitness (68%). Introducing voluntary measures from the inland navigation sector towards lowering labour mobility obstacles is considered the least adequate policy measure in relative terms by all stakeholders (56%), followed by the measure of extending the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in Service Record Books (60%). It is important to note that less than 10% of respondents find these policy measures as not appropriate, with the exception of the introduction of an EU central register (15%). Therefore, there is an overall high support to these measures.

Figure 21. Relevance of different policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector



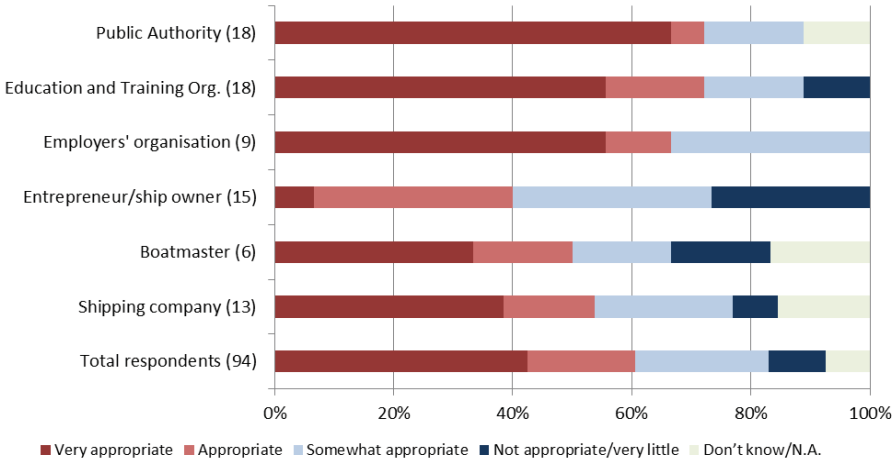
5.2. Relevance of policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector, by type of stakeholder

5.2.1. Policy measure 1: Extending the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in Service Record Books

As shown in *Figure 22*, extending the CCNR initiated process of mutual recognition would be considered "very adequate" or "adequate" by 72% of public authorities and education and training organisations and by 67% of employers' organisations that responded to the public

consultation. At the same time, the responses of around 70% of entrepreneurs/ship owners, shipping companies and boatmasters range between "very appropriate" and "somewhat appropriate". Entrepreneurs/ship owners are the group that register more "not appropriate" responses.

Figure 22. Relevance of policy measure 1 by type of stakeholder

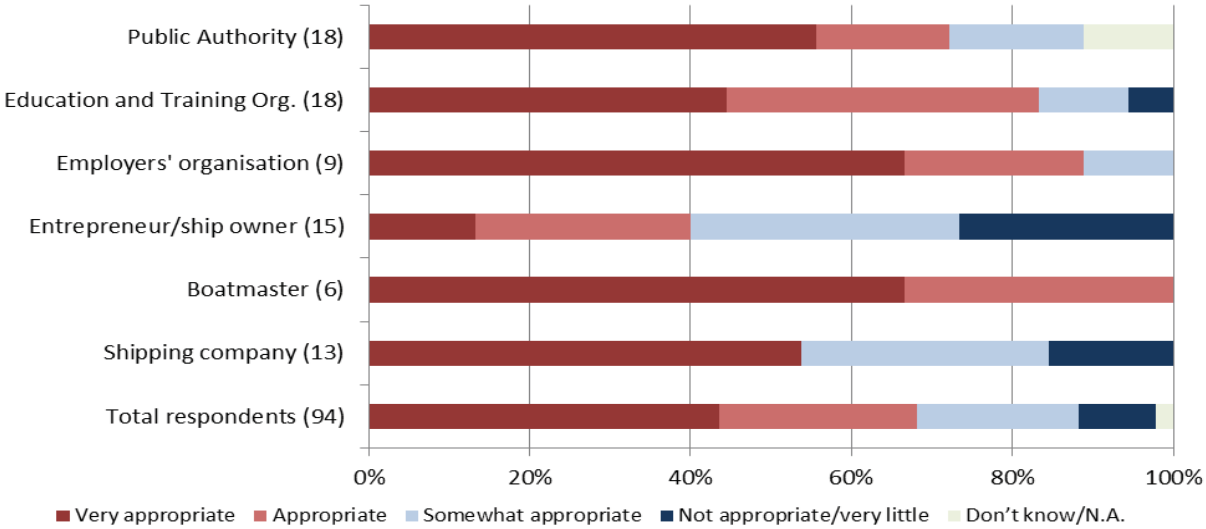


The workers' organisation that contributed to the public consultation rated this policy measure as "very appropriate", the river commission rates it "somewhat appropriate" and the responses of the four ports range between "very appropriate" and "somewhat appropriate".

5.2.2. Policy measure 2: Mandatory harmonised requirements for age and physical and mental fitness for all crew members

All boatmasters, 88% of employers' organisations, 83% of education and training organisations and 72% of public authorities that answered to the public consultation consider that this policy measure would be "appropriate" or "very appropriate" to deal with the problem of labour mobility. The percentages are lower for the other types of stakeholders, in particular for entrepreneurs/ship owners (40%). Despite this, it is important to note that 85% of shipping companies and 73% of entrepreneurs/ship owners consider it, at least, "somewhat appropriate".

Figure 23. Relevance of policy measure 2 by type of stakeholder



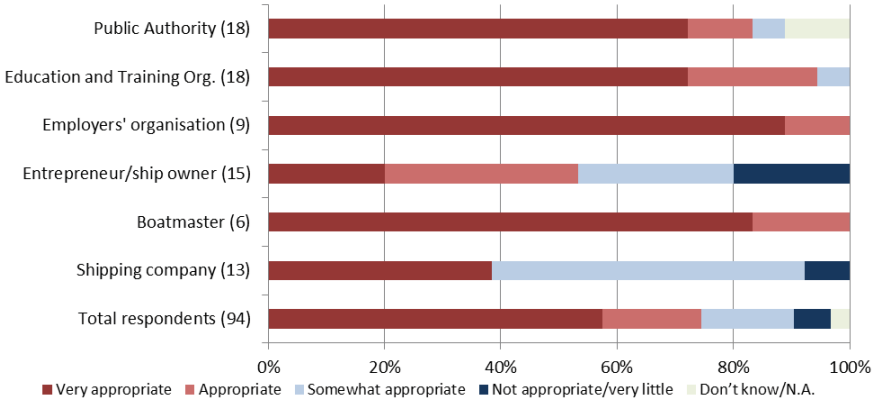
The river commission contributing to the public consultation rated this policy measure as "appropriate", whereas the workers' organisation considers it "somewhat appropriate".

5.2.3. Policy measure 3: Harmonisation of definitions of certain professional qualifications in inland navigation and mandatory harmonised requirements for these qualifications

This measure is considered "very appropriate" or "appropriate" by all employers' organisations and boatmasters that contributed to the public consultation, and by a high percentage of education and training organisations (94%), and public authorities (83%). The majority of shipping companies consider it "somewhat appropriate" (53%), whereas the opinion of entrepreneurs/ship owners is more divided. Moreover, the river commission and the worker's organisation contributing to the public consultation rated this policy measure as "very appropriate".

When asked for which crew members they consider that policy measures 2 and 3 would be most appropriate, **60% of respondents said that they should apply to boatmasters and other crew members**, whereas 24% answered they should only apply to boatmasters.

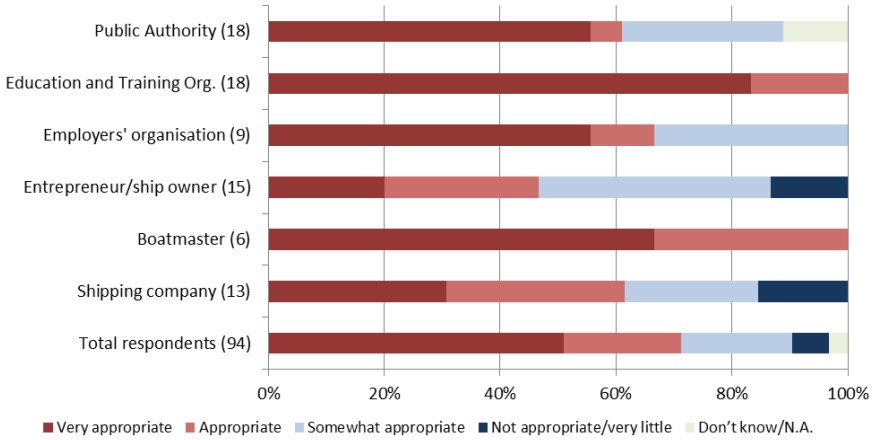
Figure 24. Relevance of policy measure 3 by type of stakeholder



5.2.4. Policy measure 4: Harmonised EU minimum training standards for professional qualifications in inland navigation

Harmonising the EU minimum training standards for professional qualifications in inland navigation is considered a highly appropriate policy measure by all education and training organisations and by all boatmasters that contributed to the public consultation, as well as by 67% of employers' organisations, 61% of shipping companies and 61% of public authorities. The opinion of entrepreneurs/ship owners is more divided, but only 13% consider it not appropriate. It is important to note that more than 90% of all respondents consider this policy measure at least "somewhat appropriate".

Figure 25. Relevance of policy measure 4 by type of stakeholder



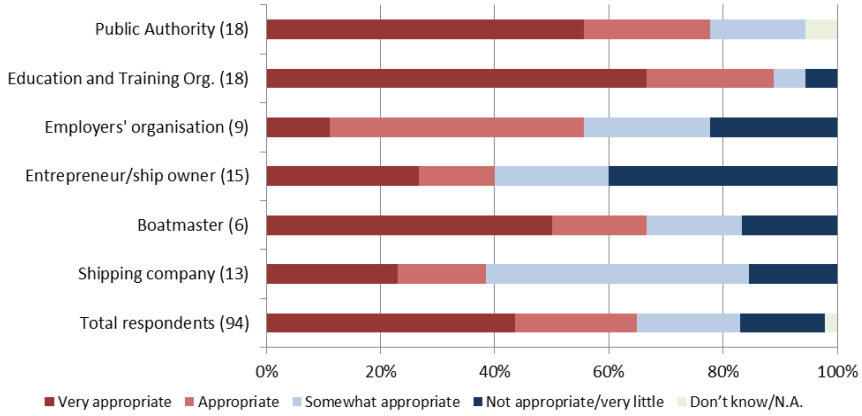
The river commission and the worker's organisation that contributed to the public consultation rated this policy measure as "very appropriate", whereas the four ports consider it either "appropriate" or "very appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate, **61% of respondents stated that it should apply to boatmasters and other crew members**, whereas 28% answered it should only apply to boatmasters.

5.2.5. Policy measure 5: Introducing at EU level of a central register for EU boatmaster certificates

Introducing a central register for EU boatmaster certificate is perceived by the majority of education and training organisations and by public authorities that participated in the public consultation as highly appropriate (with 89% and 78% of their respondents considering it "very appropriate" or "appropriate", respectively), followed by boatmasters (67%). Around 40% of shipping companies and entrepreneurs/ship owners consider it highly appropriate, and the percentage increases notably when "somewhat appropriate" is also taken into account.

Figure 26. Relevance of policy measure 5 by type of stakeholder

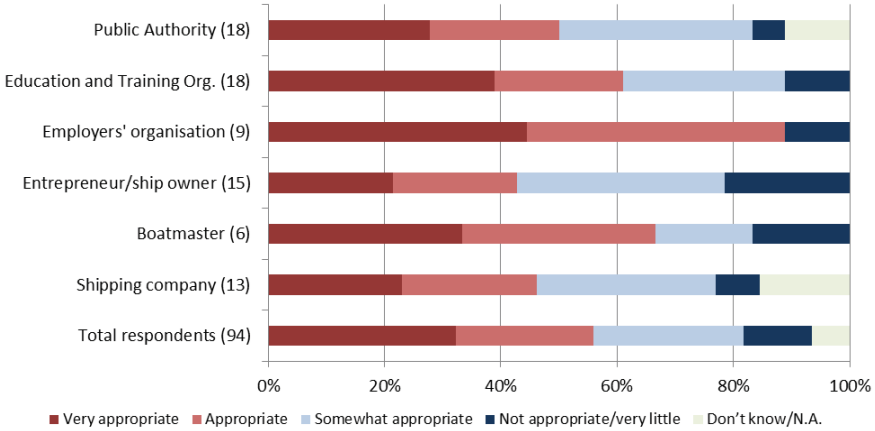


The river commission and the worker's organisation that contributed to the public consultation rated this policy measure as "very appropriate", whereas the four ports consider it either "appropriate" or "very appropriate".

5.2.6. Policy measure 6: Introducing voluntary measures from the inland navigation sector towards lowering labour mobility obstacles

As shown in *Figure 27*, approximately 80% of respondents of all groups of stakeholders consider this policy measure, at least, "somehow appropriate". The groups that register higher percentage of highly appropriate responses are employers' organisations, with 89% of respondents considering the measure as either "very appropriate" or "appropriate", boatmasters (67%) and education and training organisations (61%). The workers' organisation that contributed to the public consultation rated this policy measure as "very appropriate", the river commission considers it "somewhat appropriate" and the responses of the four ports range between "very appropriate" and "somewhat appropriate".

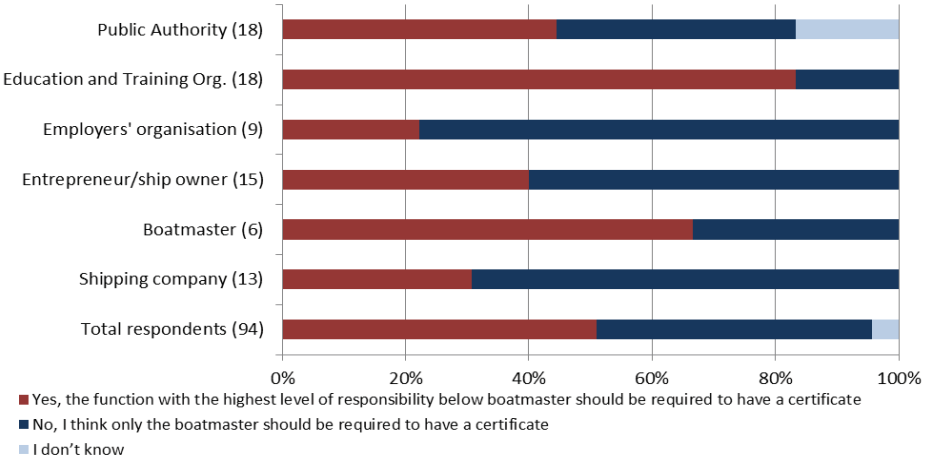
Figure 27. Relevance of policy measure 6 by type of stakeholder



5.2.7. Additional issues: certification of professional qualification

Stakeholders were invited to comment on a number of aspects related to the policy measures previously presented. In particular, this section presents the answers given to questions related to the system of certification of professional qualifications for boatmasters. One of these questions was: "Do you think it is necessary to extend the requirement for certification also to the highest rank under the level of boatmaster?" Responses differ substantially by type of stakeholder (see graph below). While the majority of respondents from education and training organisations gave a positive response (83%), followed by boatmasters (67%), the majority of respondents of other groups of stakeholders consider that only boatmasters should be required to have a certificate, in particular employers' organisations (78%), shipping companies (70%) and entrepreneurs/ship owners (60%).

Figure 28. Extension of certification to the highest rank of responsibility below boatmasters



Stakeholders were also asked about the appropriateness of introducing a modular certification system for boatmasters, which would imply the introduction of specific requirements for certificates with regard to waterways on maritime character, operation of only small vessels on small waterways, and operation of large convoys. *Figure 29* presents the stakeholders' responses. In this case, more than one answer was allowed. Half of the respondents considers that such a modular system should maintain the current specific requirements for boatmasters that operate on waterways of maritime character, 42% of them consider that the modular system should introduce specific more stringent requirements for boatmasters operating large convoys, and 39% of them consider that it should introduce less stringent requirements for boatmasters operating in small vessels on small waterways.

Figure 29. Differentiation of boatmasters certificates

	Number	% of respondents
Yes, such a modular system should maintain the current specific (more stringent) requirements for boatmasters that operate on **waterways of maritime character**	47	50%
Yes, such a modular system should introduce specific (less stringent) requirements for boatmasters that operate **small vessels on small waterways only**	37	39.4%

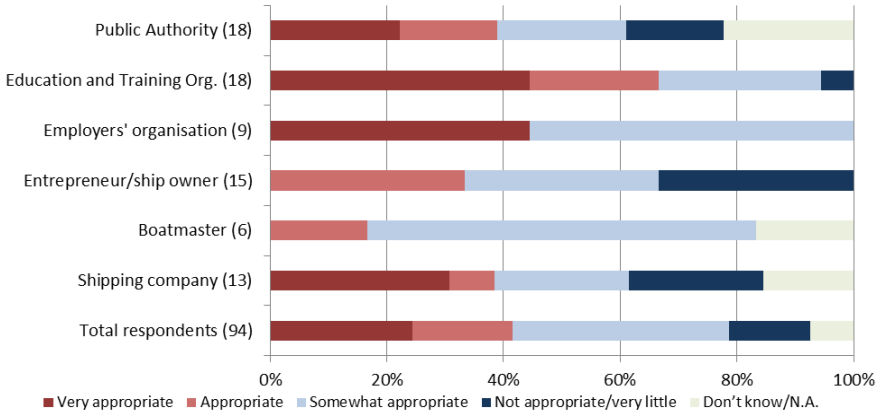
Yes, such a modular system should introduce specific (more stringent) requirements for boatmasters that operate **large passenger vessels**	33	35.1%
Yes, such a modular system should introduce specific (more stringent) requirements for boatmasters that operate **large convoys**	39	41.5%
Yes, such a modular system is important and **other categories need to be considered**	16	17%
No, there is **no need for such a differentiated approach**	12	12.8%
I don't know	11	11.7%
Total	**195**	**-**

5.3. Relevance of policy measure 7 ("Introduction of a common method for lowering the barriers for maritime sailing time/experience to qualify as inland navigation sailing time/experience") to deal with the problem of restricted labour mobility due to different requirements for professional qualifications for workers from outside the sector

The majority of stakeholders answering to this public consultation find this policy measure at least somewhat appropriate. 67% of education and training organisations and 44% of employers' organisations find it either "very appropriate" or "appropriate", whereas boatmasters are the group of stakeholders presenting a lower percentage of these responses. Nevertheless, it is important to note that more 80% of them consider it at least somewhat appropriate. Public authorities, entrepreneurs/ship owners and shipping companies are considerably divided in their responses. Additionally, the workers' organisation, the river commission and two of the four ports contributing to this public consultation rate this policy measure as "somewhat appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate, **53% of respondents said that it should apply to boatmasters and other crew members**, 17% answered it should only apply to boatmasters, and 17% answered that answered it should only apply to other crew members.

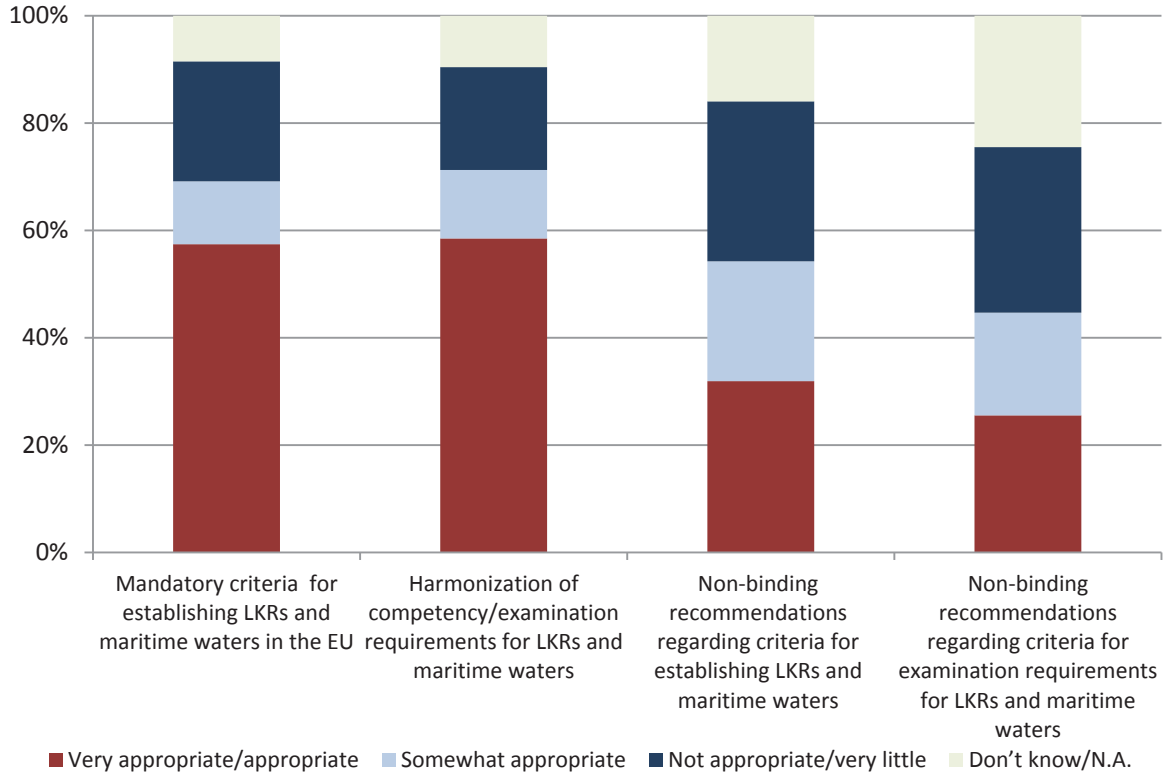
Figure 30. Relevance of policy measure 7 by type of stakeholder



5.4. Overall perception of relevance of different policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river

This section presents the overall perception of all respondents of the relative suitability of different policy measures to deal with the problem of restricted labour mobility due to local knowledge requirements. As shown in *Figure 31*, the harmonisation of competency/examination requirements (59%) and the establishment of mandatory common criteria for establishing LKRs in the EU (57%) are, in relative terms, considered the most adequate policy measures. The two remaining measures implying non-binding recommendations are perceived as relatively less appropriate.

Figure 31. Relevance of different policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river



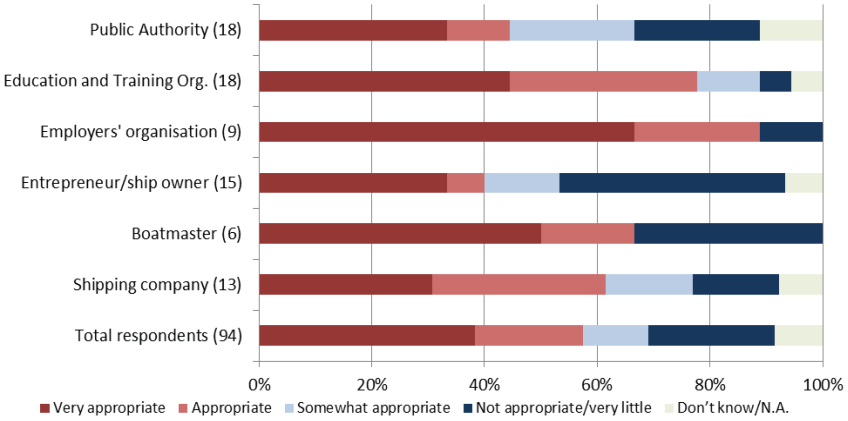
53% of the respondents consider that the **use of simulators** in training programmes or exams could lead to a reduction of training or experience requirements for LKRs, whereas 37% of respondents do not agree with the previous statement.

5.5. Relevance of policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river, by stakeholder

5.5.1. Policy measure 8: Mandatory common criteria for establishing LKRs in the EU

This policy measure is considered highly appropriate by the majority of employers' organisations (89% of them rating it either "very appropriate" or "appropriate"), education and training organisations (78%), boatmasters (67%) and shipping companies (62%), whereas it receives lower support from entrepreneurs/ship owners (40%) and public authorities (44%). However, more that 50% of them rate this policy measure at least "somewhat appropriate". Additionally, the river commission contributing to this public consultation considers this measure as "very appropriate".

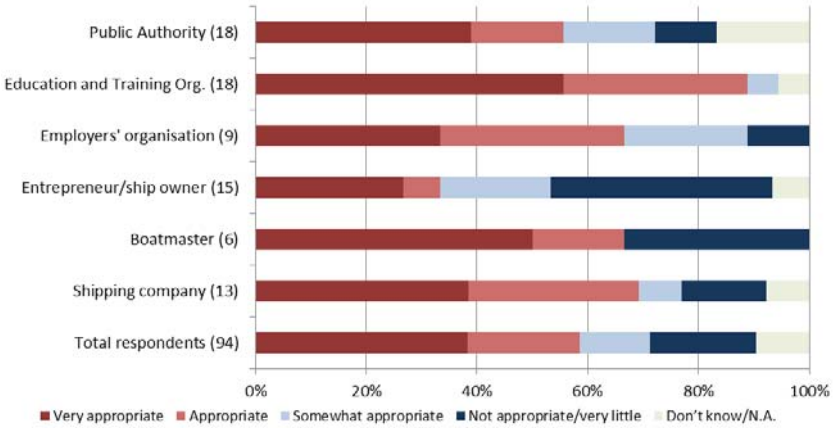
Figure 32. Relevance of policy measure 8 by type of stakeholder



5.5.2. Policy measure 9: Harmonisation of competency/examination requirements for LKR

As shown in *Figure 33*, the distribution of opinions about the appropriateness of this policy measure varies by type of stakeholder. The majority of education and training organisations consider it highly appropriate (89%), followed by shipping companies (69%), boatmasters (67%), employers' organisations (67%) and public authorities (56%). Even though 40% of entrepreneurs/ship owners find it "not appropriate", it should be noted that 53% of their respondents consider the measure at least "somewhat appropriate". The river commission contributing to this public consultation considers this policy measure as "very appropriate".

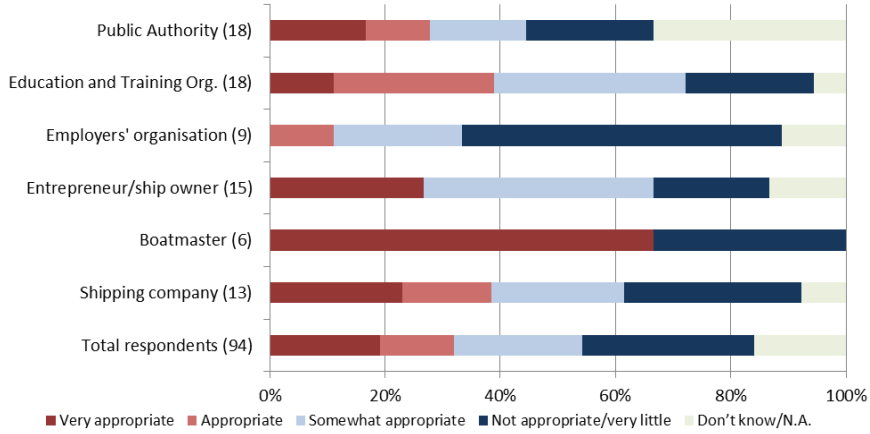
Figure 33. Relevance of policy measure 9 by type of stakeholder



5.5.3. Policy measure 10: Non-binding recommendations regarding criteria for establishing LKRs in the EU

In general, this policy measure receives low support by the different groups of stakeholders, with the only exception of boatmasters. As shown in *Figure 34*, most of the other groups of stakeholders consider this policy measure as either "not appropriate" or only "somewhat appropriate".

Figure 34. Relevance of policy measure 10 by type of stakeholder

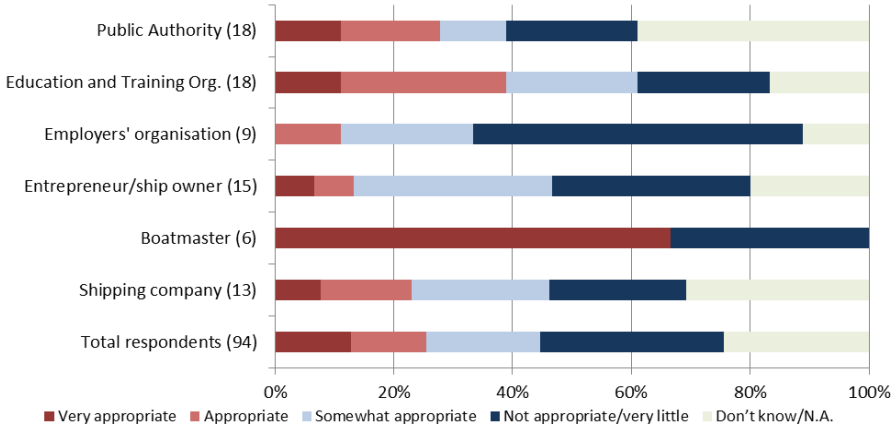


The river commission and two of the four ports contributing to this public consultation consider this policy measure as "not appropriate", whereas the other two ports and the workers' organisation did not provide an answer.

5.5.4. Policy measure 11: Non-binding recommendations regarding criteria for examination requirements for LKR

Similarly to the previous measure, the establishment of non-binding recommendations regarding criteria for examination requirements for LKR is in general not considered an appropriate measure to deal with the problem of restricted labour mobility. This policy measure registers the lowest support among stakeholders, with the only exception of boatmasters. The river commission and two of the four ports contributing to this public consultation consider this policy measure as "not appropriate". The other two ports and the workers' organisation do no provide an answer.

Figure 35. Relevance of policy measure 11 by type of stakeholder

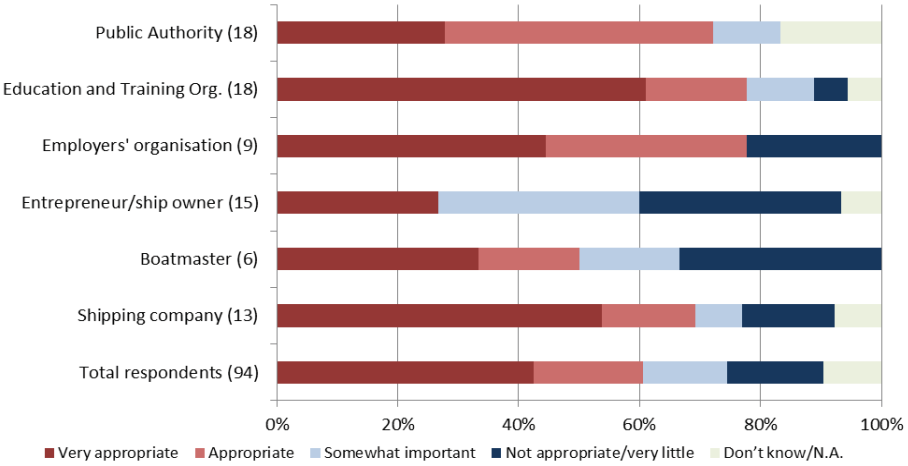


When asked whether the **information provided by River Information Services** could replace in certain cases the need for local knowledge requirements, 52% of the respondents answered "yes, sometimes", 22% answered "never", and 18% answered "yes, always".

5.6. Relevance of policy measure 12 ("Introduce a mandatory electronic SRB and a central register for e-SRB") to deal with the difficulty of extracting reliable information from SRBs needed for workers to prove their professional qualifications, by stakeholder

Introducing a mandatory electronic SRB is considered appropriate by 78% of education and training organisations, 78% of employers' organisations and 72% of public authorities. Despite registering a lower percentage of "very appropriate" and "appropriate" responses than the previously mentioned groups, more than 60% of shipping companies, boatmasters and entrepreneurs/ship owners consider it at least "somewhat appropriate". The specific distribution of responses is shown in *Figure 36*.

Figure 36. Relevance of policy measure 12 by type of stakeholder

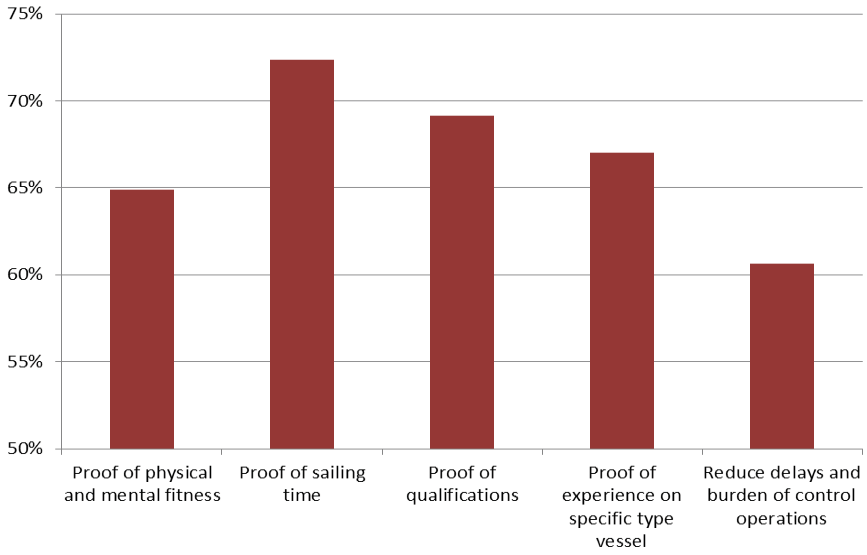


The workers' organisation participating to this public consultation consider this policy measure "very appropriate", whereas the river commission rates it as "very appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate for, **52% of respondents answered boatmasters and other crew members**, 16% answered only boatmasters and 16% answered only other crew members. When asked whether they think that introducing electronic SRBs would be beneficial for inland navigation, 74% of the stakeholders responded positively. Furthermore, 64% of the respondents consider that the introduction of electronic SRBs should be accompanied by the introduction of **electronic logbooks** (for instance to verify entries made in the e-SRB with regard to sailing time).

Stakeholders where additionally asked for what purposes would the e-SRB be used. *Figure 37* below shows the percentage of total stakeholders that stated that they "totally agree" or "tend to agree".

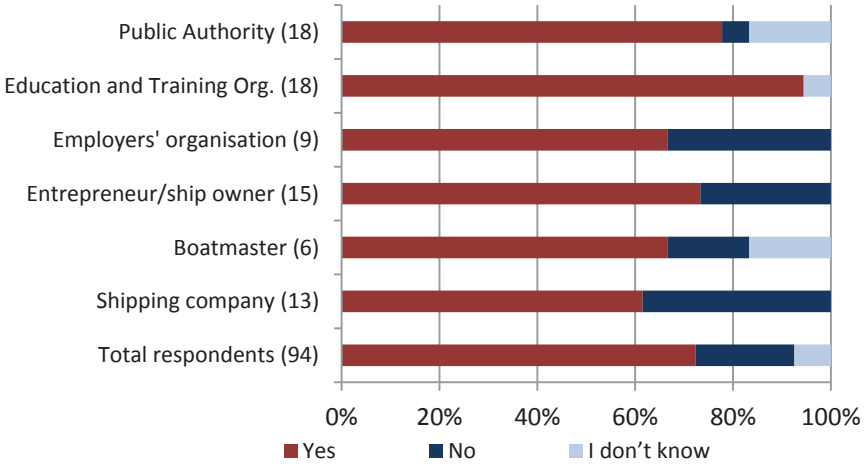
Figure 37. Use of the e-SRBs



5.7. Relevance of policy measure 13 ("Introduction of River Speak") to deal with the problem of restricted labour mobility derived from language problems

The introduction of River Speak or other language-neutral means of communication in the training programmes and as a part of professional qualifications is considered by 72% of stakeholders contributing to the public consultation as a measure that could help addressing the problem of mobility of IWT workers. As shown in *Figure 38*, education and training organisations are the group that presents a higher support to this measure (94%), followed by public authorities (78%) and entrepreneurs/ship owners (73%). 60% of shipping companies rate the measure as relevant to improve labour mobility, despite being the group that gives the lowest support to the measure, in relative terms. The river commission and the workers' organisation that participated in the public consultation also consider this measure as very appropriate.

Figure 38. Relevance of policy measure 13 to deal with the problem of mobility, by type of stakeholder

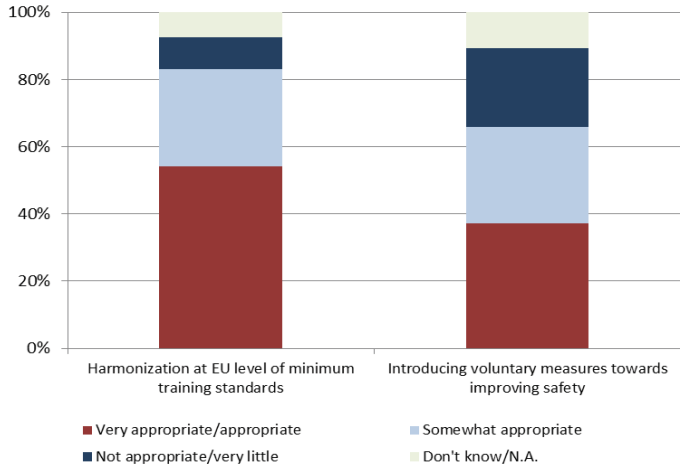


PROBLEM OF SAFETY

5.8 Overall perception of relevance of different policy measures to deal with the safety problem related to the fact that the standards for professional training in inland navigation have not kept up with technological development

This section presents the relative importance of different policy measures to the problem of safety, as results from the responses of all the stakeholders participating in the public consultation. Responses by type of stakeholder are found in the following section 5.8. As shown in *Figure 39*, the harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation is in relative terms considered more appropriate to deal with safety problems than introducing voluntary measures (83% of respondents consider harmonisation "somewhat appropriate", "appropriate" or "very appropriate", versus 66% in the case of voluntary measures). Only 10% considers the harmonisation measures as not appropriate, whereas this figure rises up to 23% for the voluntary measures.

Figure 39. Relevance of policy measures to deal with the safety problem related to the fact that standards for professional training have not kept up with technological development



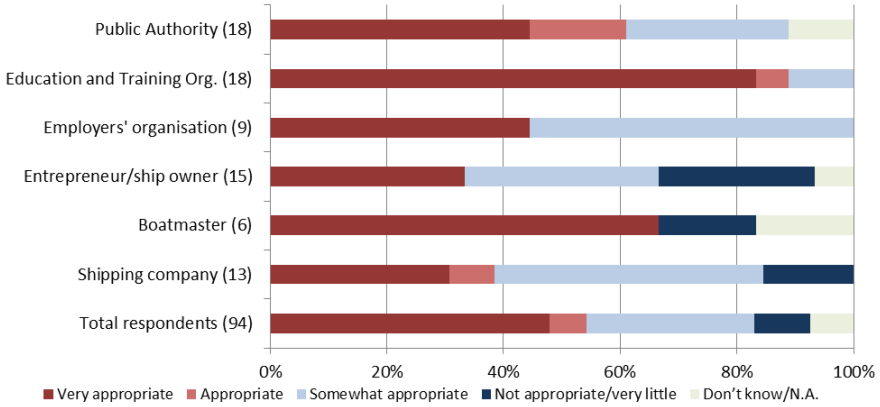
Stakeholders were asked whether the **use of simulators** in inland navigation training and education programmes would increase safety in the sector. The majority of respondents (84%) answered positively.

5.9. Relevance of policy measures to deal with the safety problem related to the fact that the standards for professional training in inland navigation have not kept up with technological development, by type of stakeholder

5.9.1. Policy measure 14: Harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation

The distribution of responses with regards to the appropriateness of this policy measure differs notably by group of stakeholder. Approximately 90% of education and training organisations consider it highly appropriate, followed by 67% of boatmasters and 61% of public authorities. At the same time, employers' organisations, shipping companies and entrepreneurs/ship owners present a higher percentage of "somewhat important" responses.

Figure 40. Relevance of policy measure 14 by type of stakeholder



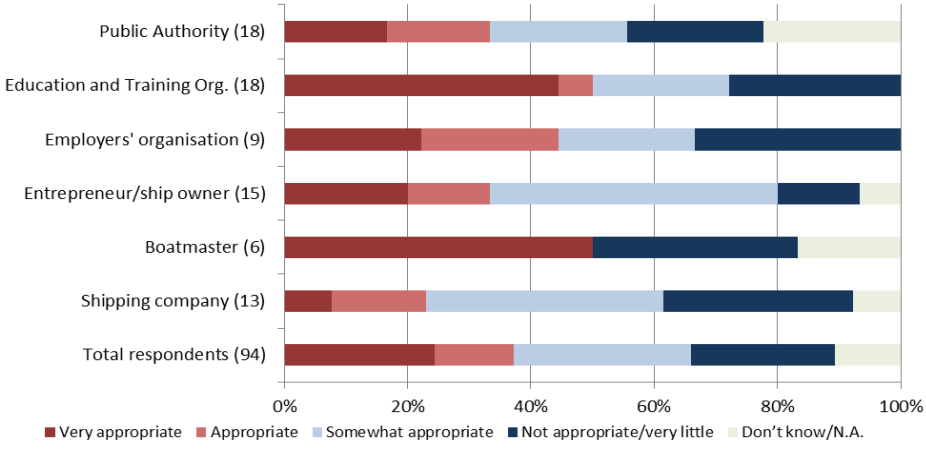
The river commission contributing to this public consultation considers that this policy measure is "very appropriate", whereas the workers' organisation finds it "appropriate". The opinion of ports is highly dispersed in this case. It is important to note that, in general, more than 80% of respondents find this policy measure, at least, "somewhat important".

When asked for which crew members you consider that this policy measure would be the most appropriate, **71% of respondents answered boatmasters and other crew members**, whereas 17% stated only boatmasters.

5.9.2. Policy measure 15: Introducing voluntary measures from the inland navigation sector towards improving safety

The perception of the appropriateness of this measure to deal with the problem of safety is comparatively more dispersed than in previous cases. The majority of respondents of all groups of stakeholders perceive this measure as at least "somewhat appropriate". Education and training organisations and boatmasters are the groups registering a higher percentage of "very appropriate" or "appropriate" responses, with 50% of the respondents in each case.

Figure 41. Relevance of policy measure 15 by type of stakeholder

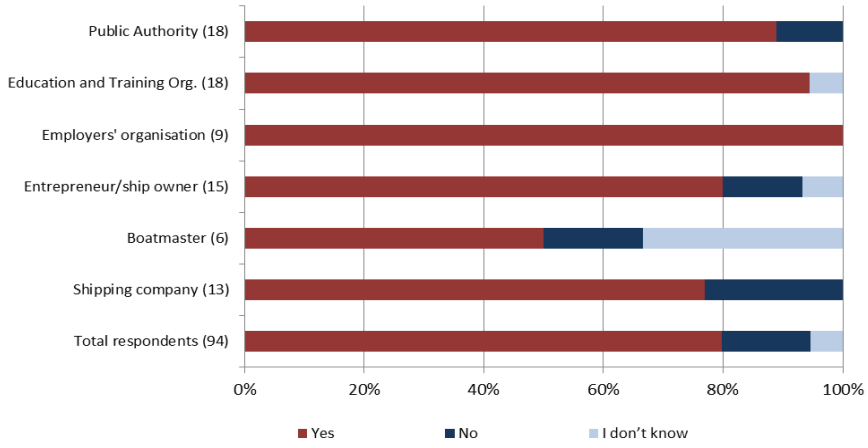


The river commission participating in this public consultation considers that this policy measure is "somewhat appropriate".

5.10. Relevance of policy measure 13 ("Introduction of River Speak") to deal with the safety problem derived from language problems

Around 80% of the respondents consider that the introduction of River Speak or other language-neutral means of communication in the training programmes and as a part of professional qualifications would help improving the levels of safety in the sector. As shown in *Figure 42*, all employers' organisations that participated in this public consultation give support to this measure, followed by 94% of education and training organisations, 89% of public authorities, 80% of entrepreneurs/ship owners and 77% of shipping companies. The workers' organisation and the river commission participating in this public consultation also have a positive opinion on this measure.

Figure 42. Relevance of policy measure 13 to deal with problem of safety, by type of stakeholder



6. Regional differences in the impact of the measures as perceived by the stakeholders

The stakeholders in the online public consultation were asked to compare harmonised requirements measures with voluntary measures. The main results for two important river areas, the Rhine and Danube, are summarized below:

- With regard to labour mobility, mandatory harmonised professional qualifications and training standards will, according to 85% of CCNR stakeholders, and a bit less than 80% of Danube stakeholders, result in fairly to very positive effects on labour mobility. For voluntary measures these percentages are respectively around 50% and 60%.
- With regard to administrative burden: mandatory harmonised professional qualifications and training standards will, according to 54% of CCNR stakeholders and more than 70% of Danube stakeholders, result in fairly to very positive effects on the administrative burden. For voluntary measures these percentages are respectively around 23 and 62%.
  With regard to safety: mandatory harmonised professional qualifications and training standards will according to around 90% of CCNR stakeholders, and more than 85% of Danube stakeholders result in fairly to very positive safety effects. For voluntary measures these percentages are both only around 60%. For the voluntary approach, respectively 8 and 4 % of CCNR and Danube respondents foresee negative effects.

The online public consultation revealed similar support both from the CCRN and the Danube region

7. Conclusions

The responses received within the online public stakeholder consultation on the "Recognition and modernisation of professional qualifications in inland navigation" confirm that the problems of restricted labour mobility and safety identified by the European Commission are of high importance and need to be dealt with, in order to remove the barriers between EU Member States for exercising professions in the field of inland navigation. The majority of the respondents considered the different problem drivers and subsequent policy objectives identified as highly relevant.

The online consultation also gathered information about the opinion of different groups of stakeholders with regards to the appropriateness of 15 different policy measures. The responses received confirm a high level of support to measures implying the harmonisation of professional requirements, qualifications and examinations in inland navigation between EU Member States, whereas the introduction of voluntary measures or non-binding recommendations receives a considerably lower level of support.

The voice of the stakeholders on specific problems and measures gathered through this public consultation will help the European Commission to devise a set of appropriate policy measures during the process of elaboration of the impact assessment accompanying a potential legislative proposal on the recognition and modernisation of professional qualifications in inland navigation.

Annex 12:

Online public consultation: summary of the stakeholders' view

INTRODUCTION

In the context of the impact assessment accompanying a potential legislative proposal on the recognition and modernisation of professional qualifications in inland navigation, the Commission services have conducted an online public stakeholder consultation. The goal of the potential initiative is the removal of barriers between EU Member States for exercising professions in the field of inland navigation, thus subscribing to the main goal of the European Commission's common transport policy of the free movement of persons and goods across the EU. The harmonisation of national legal and administrative regulations is of high importance for creating fair conditions for competition within and between the different transport modes[7]. The aim of this public online consultation was to collect the stakeholders' views in order to have their opinion on the identified problems and policy objectives and to assess their support to the proposed policy measures.

The public consultation was open for 13 weeks (26/03/2013 to 21/06/2013), and it contained a total of 90 questions, both quantitative and qualitative. The Commission services received a total of 94 replies. This note follows the structure of the consultation document and provides a summary of the nature of responses of different stakeholders. It is important to note that the sample of respondents is not statistically representative, and thus results should be interpreted with caution.

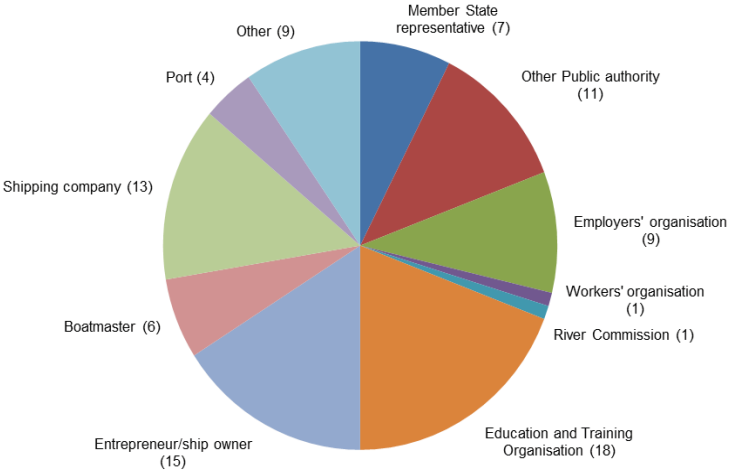
1. IDENTIFICATION OF THE RESPONDENTS

1.1 Overall breakdown of consultation respondents by stakeholder type

The Commission services received a total of 94 contributions. 10 stakeholder groups (divided by organisation type)[8] were represented among the respondents. Education and training organisations were the largest participating group, with 18 responses, followed by entrepreneurs/ship owners (15) and shipping companies (13). Public authorities account for a total of 17 responses, divided between Member State representatives (7) and other public authorities (10). The other categories had relatively few respondents (see graph below).
The graphs accompanying each section of this report indicate the proportions of each category of respondents that gave a certain answer. Given the low number of responses received from workers' organisations (1), river commissions (1)[9] and ports (4), these categories will not be included in the graphs throughout the report, but will be qualitatively assessed and referred to in the text when appropriate.

[7] See the background document for more information.
[8] Please note that opinions expressed do not always represent the position of an organisation (e.g. training institute), but sometimes only the view of the person who responded to the public consultation. For the purpose of data analysis, these contributions have nevertheless been considered as opinions expressed by a member of the stakeholder's group to which the organisation they work for belongs.
[9] The river commission participating in the public consultation was the Danube Commission.

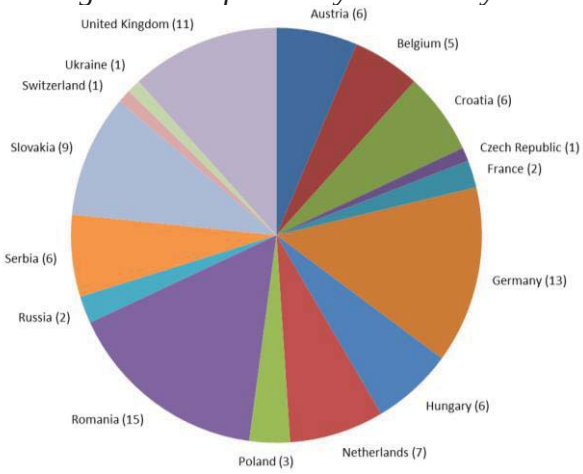
Figure 1. Consultation respondents by stakeholder type



1.2 Overall summary of responses by nationality

The responses came from a total of 16 countries. Romania (15), Germany (13), the United Kingdom (11) and Slovakia (9) account for the largest number of respondents, followed by the Netherlands (7), Hungary (6), Austria (6), Croatia (6) and Belgium (5).

Figure 2. Responses by nationality



1.3. Specific geographical range(s) for which stakeholders have experience

Figure 3 presents the geographical ranges for which the respondents to the public consultation have experience. The information provided reflects that a lot of respondents have experience in multiple river basins. 47 stakeholders have experience in the Danube and Sava Basin, 38 have it for the Rhine basin and 30 for the Moselle Basin.

Figure 3. Respondents by geographical range of experience

Category	Number
Rhine Basin	38
Moselle Basin	30

Danube and Sava Basin	47
Scheld and Meuse Basin	15
Elbe Basin	12
Other French waterways	6
Other German waterways	21
Other Dutch waterways	16
Oder Basin	7
Inland waterways of maritime character	28
Others	19
Total	**239**

2. Problems to be addressed

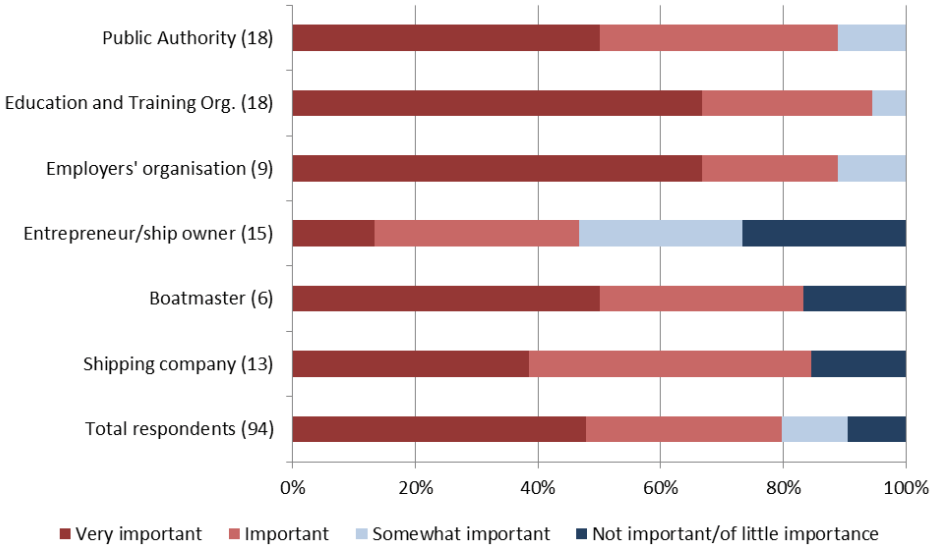
In this section of the public consultation, the European Commission sought to understand to which extent stakeholders agree with the existence of the pre-identified problems regarding the recognition of professional qualifications and training standards in inland navigation and to identify other problems that would need to be taken into account.

2.1. Is the problem of restricted labour mobility relevant?

Almost 80% of all respondents rated the problem of restricted labour mobility derived from the differences between countries in professional qualifications and training standards in inland navigation as "important" or "very important". Education and training organisations are the group that rates it as most important (95%), followed by public authorities and employers' organisations (around 89% each). Entrepreneurs/ship owners present a more dispersed distribution of responses, with almost 50% of the respondents considering the labour mobility restrictions as "very important" or "important".

Figure 4. Relevance of the problem of restricted labour mobility by stakeholder type[10]

[10] This graph shows the distribution of answers given by each category of stakeholder, allowing the reader to compare the answers provided by different groups of stakeholders. At the same time, the vertical axis presents the number of respondents in each category (e.g. 18 public authorities). The last category of the graph (i.e. "total respondents") includes the ones presented in the categories above, and also the answers of four ports, one river commission, a workers 'organisation and nine responses classified as "others". This type of graph will be used throughout the report.

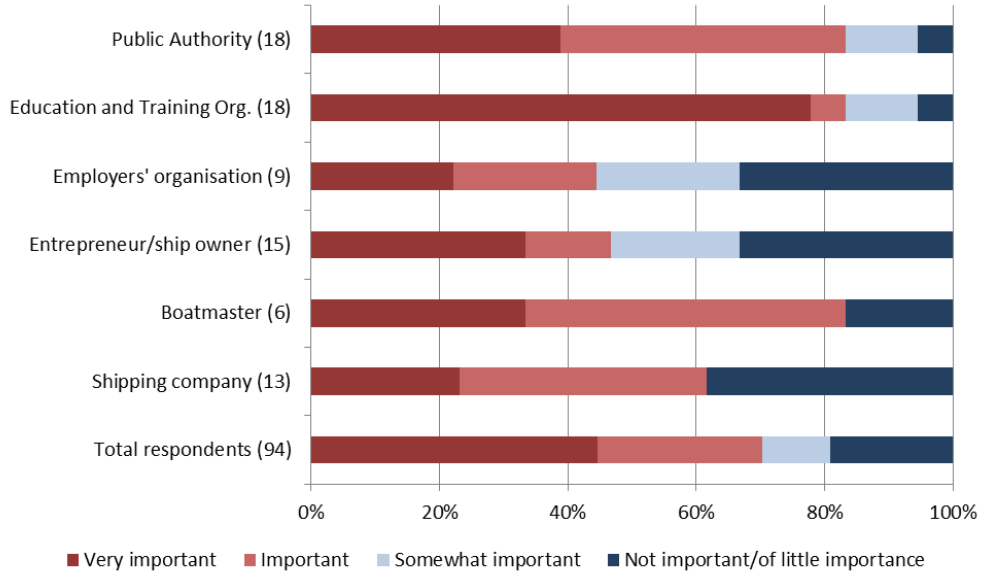


The river commission and the worker's organisation that contributed to the public consultation rated this problem as highly important. The four ports provided responses that range from "somewhat important" to "very important".

2.2. Is the problem of safety relevant?

Around 70% of all respondents consider that safety problems derived from the differences between countries in professional qualifications and training standards in inland navigation are "important" or "very important". Nevertheless, responses vary by group of stakeholder: whereas 83% of public authorities, boatmasters and education and training organisations consider this problem as "very important" or "important", the percentage is of around 45% for entrepreneurs/ship owners and employers' organisations. Despite this, it is important to note that more than 60% of respondents of each group of stakeholders consider this problem at least "somewhat important".

Figure 5. Relevance of the problem of safety by stakeholder type



3. Problem drivers

3.1. Problem of Restricted Labour Mobility: Overall perception of relevance of different problem drivers

This section presents the overall perception of the relative importance of different drivers to the problem of restricted labour mobility. It is important to note that these are the aggregated responses of all stakeholders. Disaggregation by type of stakeholder is found in the following section 3.2.

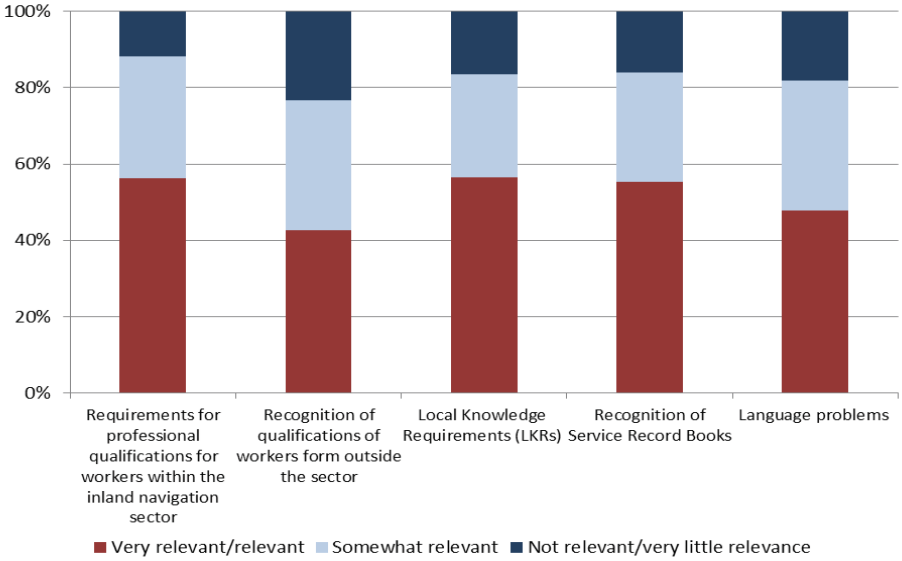
As shown in *Figure 6*, difficulties due to different requirements for professional qualifications of workers within the inland navigation sector (56%) and the difficulties with the recognition by national authorities of service record books (SRBs) or of the information contained in the SRBs (55%) are in relative terms considered the aspects contributing the most to the problem of restricted labour mobility. Around 50% of all respondents find that local knowledge requirements (LKRs) preventing boatmasters to operate on a certain stretch (51%) and language problems preventing crew members of different nationalities to perform duties on vessels sailing on the EU inland waters (48%) are "relevant" or "very relevant" problem drivers. Finally, difficulties with the recognition of relevant professional qualifications of workers from outside the sector are considered as the least important problem driver in relative terms (43% rating it "very relevant" or "relevant").

The stakeholders were asked to assess the **current system of mutual recognition of Service Record Books operated through multilateral agreements between the CCNR and a number of non-Rhine EU Member States**. 40% of the respondents stated that this system serves its purpose only partially, 21% consider that it does not serve its purpose and only 13% of them consider that it serves its purpose fully.

When asked whether the **current system of mutual recognition of boatmasters certificates** adequately addresses the labour mobility barriers for boatmasters from the Non-Rhine EU Member States on the Rhine, 45% of the respondents say that mobility

barriers are only partially addressed, 26% think that they are not adequately addressed, and only 12% consider that they are fully addressed through this system.

Figure 6. Relevance of different problem drivers to the problem of restricted labour mobility

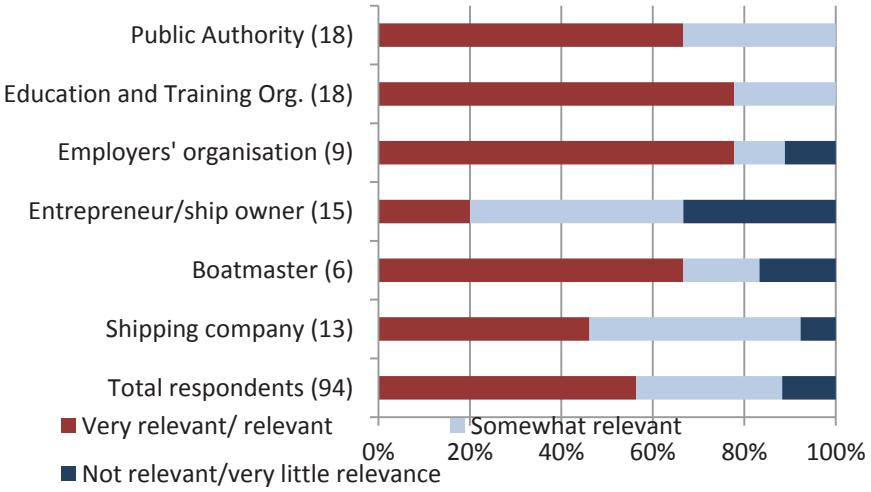


3.2. Relevance of different problem drivers by type of stakeholder

3.2.1. Problem driver 1: Difficulties due to different requirements for professional qualifications of workers within the inland navigation sector (requirements for experience, exam programmes, physical and mental fitness)

Around 78% of education and training organisations and employers' organisations that responded to the public consultation consider this problem driver as highly relevant, followed by around 67% of boatmasters and public authorities, and 46% of shipping companies. Most entrepreneurs/ship owners rated it as "somewhat relevant" (47%).

Figure 7. Relevance of problem driver 1 (different requirements for professional qualifications) by type of stakeholder

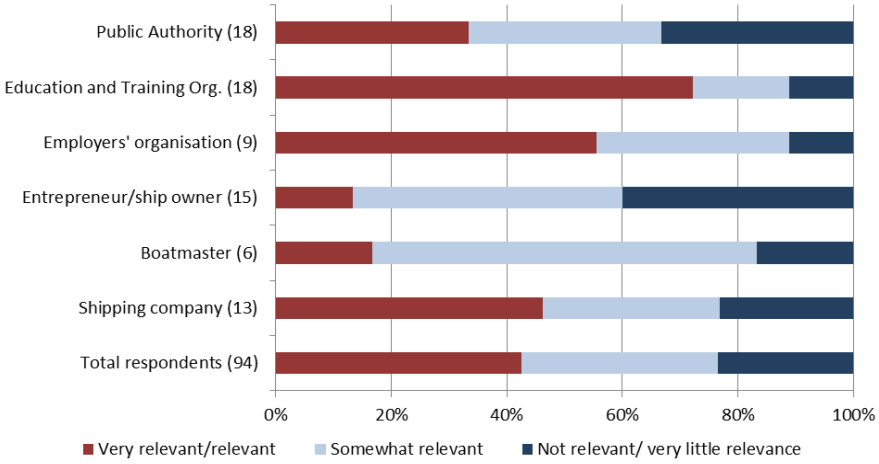


Additionally, the river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas three out of four ports rated it as "somewhat important". It is important to note that only 11% of the total number of respondents finds this problem driver as "not relevant" or of "little relevance".

3.2.2. Problem driver 2: Difficulties with recognition of relevant professional qualifications of workers from outside the sector (such as the maritime or fishing sector)

The distribution of responses with regard to the second problem driver differs substantially by group of stakeholder. An important percentage of education and training organisations (72%) and employers' organisations (56%) consider it a highly relevant problem, followed by shipping companies (46%). All the other groups consider it mainly "somewhat relevant", in particular boatmasters (67%). Around 67% of public authorities and 60% entrepreneurs/ship owners consider it at least "somewhat relevant".

Figure 8. Relevance of problem driver 2 (recognition of qualifications of workers from outside the sector) by type of stakeholder



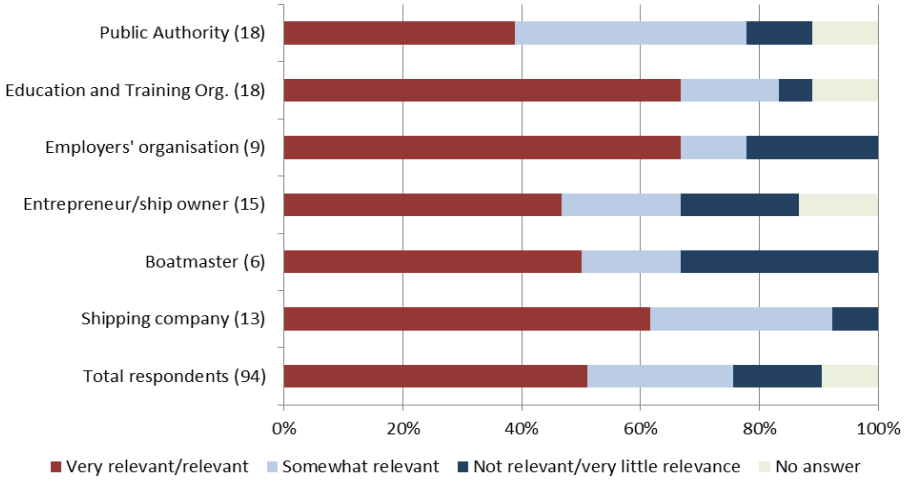
The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas three out of four ports rated it as "somewhat important".

3.2.3. Problem driver 3: Local Knowledge Requirements (LKRs) may prevent boatmasters to operate on a certain stretch (relevant for boatmasters only)

Perceptions of the relevance of this problem driver vary between types of stakeholders, as shown in *Figure 9*. Education and training organisations and employers' organisations are the groups that consider it more important, with 67% of their respondents rating it as highly relevant, followed by shipping companies (62%). At the same time, entrepreneurs/ship owners and boatmasters are the groups of stakeholders that perceive this problem driver as less relevant, in relative terms, with 67% of their respondents rating it as highly important or somewhat important. With regards to public authorities, it should be noted that despite presenting a relatively low percentage of "highly relevant" responses, only 11% of them consider the issues with LKRs of no relevance. Additionally, the river commission and the

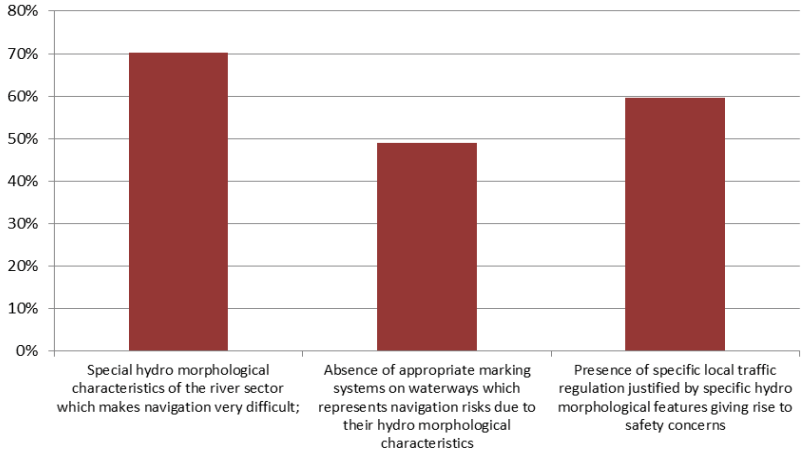
worker's organisation that contributed to the public consultation consider this problem driver as highly relevant.

Figure 9. Relevance of problem driver 3 (Local Knowledge Requirements) by type of stakeholder



The public consultation also asked the stakeholders about the justification of local knowledge requirements. As shown in *Figure 10*, 70% of the respondents consider that LKRs are justified when there are some special hydro morphological characteristics of the river sector which make navigation very difficult; 60% of them consider they are justified when there are specific local traffic regulations in place due to safety concerns, and 49% of them refer to the absence of appropriate marking systems.

Figure 10. Criteria for the establishment of Local Knowledge Requirements[11]



[11] This graph shows the percentage of stakeholders that consider each of these criteria relevant for the establishment of LKRs. It has to be taken into account that more than one response was allowed.

When asked about whether the LKRs which are currently in force in Member States are justified in view of the criteria referred to above (hydro morphological characteristics, absence of marking systems, local traffic regulations), the responses provided were the following:

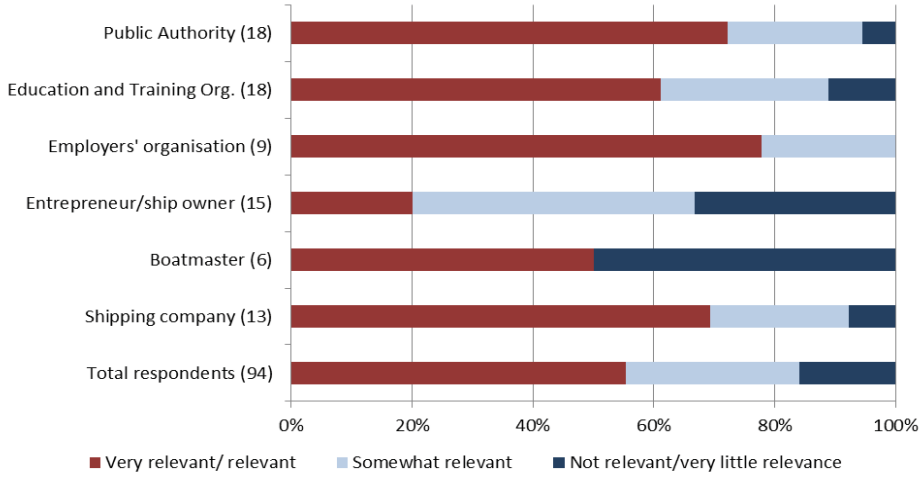
Figure 11. Justification of the currently enforced LKRs[12]

Answer	Number
The currently enforced LKRs are **fully justified** in view of the criteria mentioned	38
The currently enforced LKRs are **partially justified** in view of the criteria mentioned	30
The currently enforced LKRs are **not justified** in view of the criteria mentioned	47
Don't Know	15
Total	**94**

3.2.4. Problem driver 4: Difficulties with the recognition by national authorities in the Member States of Service Record Books (SRBs) or of the information contained in the SRBs

The difficulties with the recognition of SRBs are considered by 78% of employers' organisations responding to the public consultation as "relevant" or "very relevant" drivers to the problem of restricted labour mobility. A slightly lower percentage is registered for public authorities and shipping companies (around 70% in each case). Entrepreneurs/ship owners are the group of stakeholders that registers a lower percentage of "highly relevant" responses (20%). Despite this, it is important to note that 67% of them consider it either "somewhat relevant" or "highly relevant". Boatmasters present a divided position: half of the respondents consider it very relevant, whereas the other half consider it of little relevance.

Figure 12. Relevance of problem driver 4 (recognition of Service Record Books) by type of stakeholder



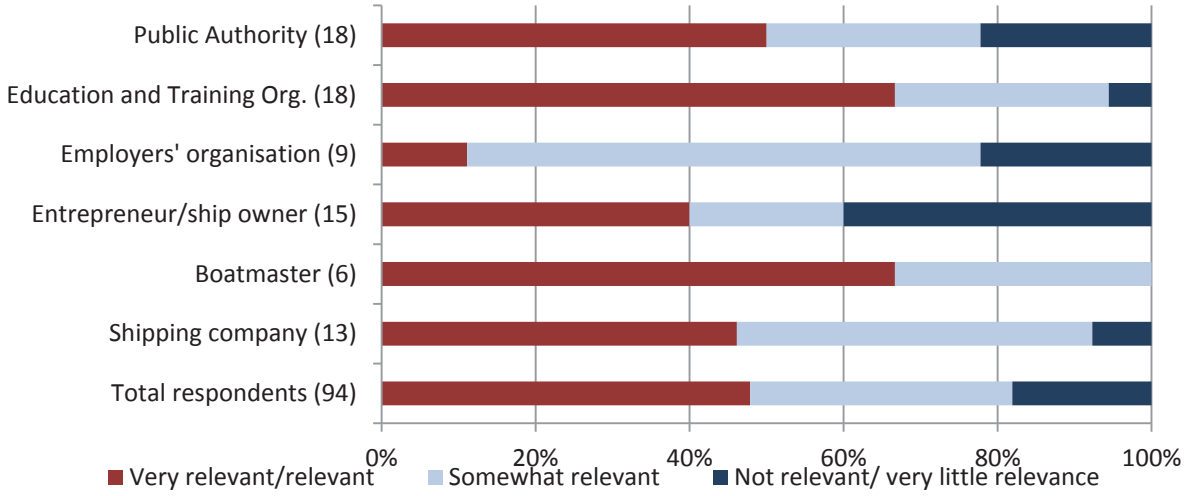
[12] This graph shows the number of stakeholders that gave each response.

The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as "very relevant" or "relevant", whereas three out of four ports rated it as "somewhat relevant".

3.2.5. Problem driver 5: Language problems prevent crew members of a different nationality to perform duties on vessels sailing on the EU inland waterways

Language problems are considered a relevant barrier to labour mobility in inland navigation by education and training organisations and by boatmasters (67% each), while it is considered as "somewhat relevant" by most employers' organisations responding to the consultation (67%). Public authorities, shipping companies and entrepreneurs/ship owners have an intermediate position, with around 40-50% of them rating language problems as highly relevant.

Figure 13. Relevance of problem driver 5 (language problems) by type of stakeholder



Furthermore, the river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas the ports present a more dispersed opinion. In total, 80% of the respondents consider language problems as somewhat relevant to very relevant with regard to labour mobility issues.

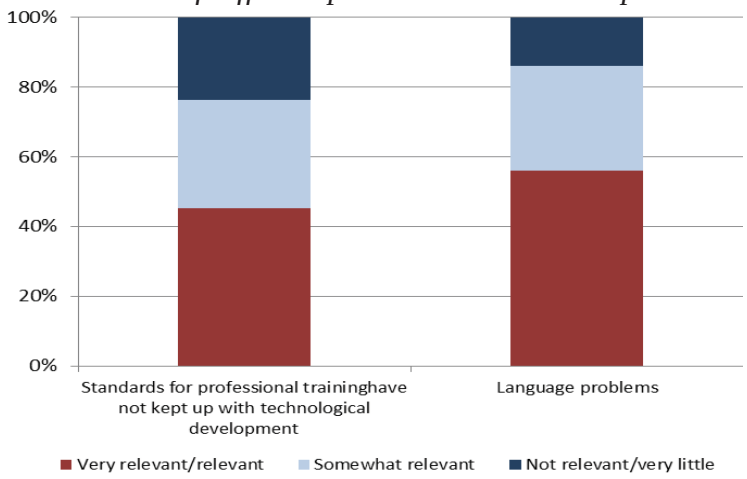
3.3. Safety problem: Overall perception of relevance of different problem drivers

This section presents the overall perception of all stakeholders of the relative importance of different problem drivers to the problem of safety. In order to do this, the responses "relevant" and "very relevant" were aggregated. Responses by type of stakeholder are found in the following section 3.4.

As shown in *Figure 14*, language problems caused by crew members of different nationalities resulting in communication problems is, in relative terms, considered the aspect contributing the most to the problem of safety (85% of the respondents considering it either highly relevant

or somewhat relevant). Around 76% of all respondents find that the standards for professional training in inland navigation which are set at national level have not kept up with technological development, making it a highly relevant or somewhat relevant problem driver.

Figure 14. Relevance of different problem drivers to the problem of safety

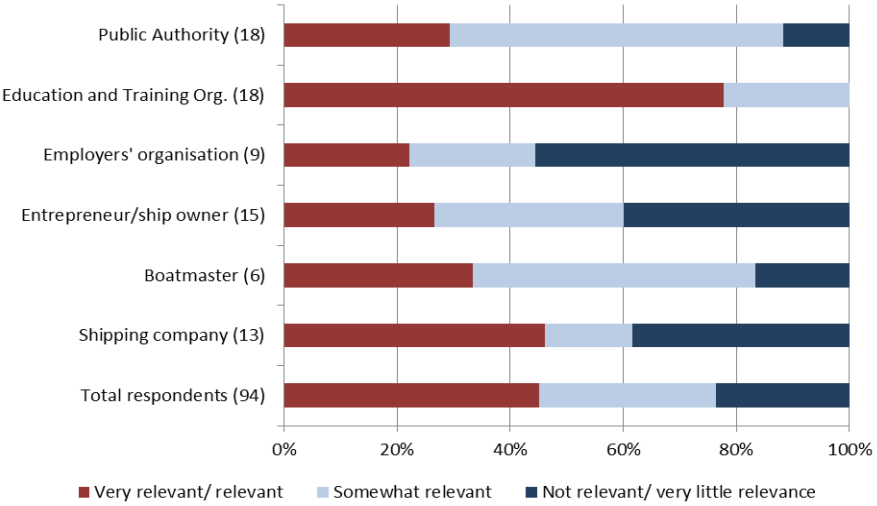


3.4. Relevance of problem drivers by type of stakeholder

3.4.1. Problem driver 1: The standards for professional training in inland navigation which are set at national level have not kept up with technological development

The importance of this problem driver is perceived by the different groups of stakeholders as relatively lower with respect to others, with the exception of education and training organisations, with 78% of its respondents rating it as "relevant" or "very relevant". Despite this, more than 60% of the respondents of each group of stakeholders consider it, at least, "somewhat important", reaching 83% in the case of public authorities and boatmasters. Employers' organisations and entrepreneurs/ship owners are the groups that consider it less important, in relative terms.

Figure 15. Relevance of problem driver 1 (standards for professional training have not kept up with technological development) by type of stakeholder

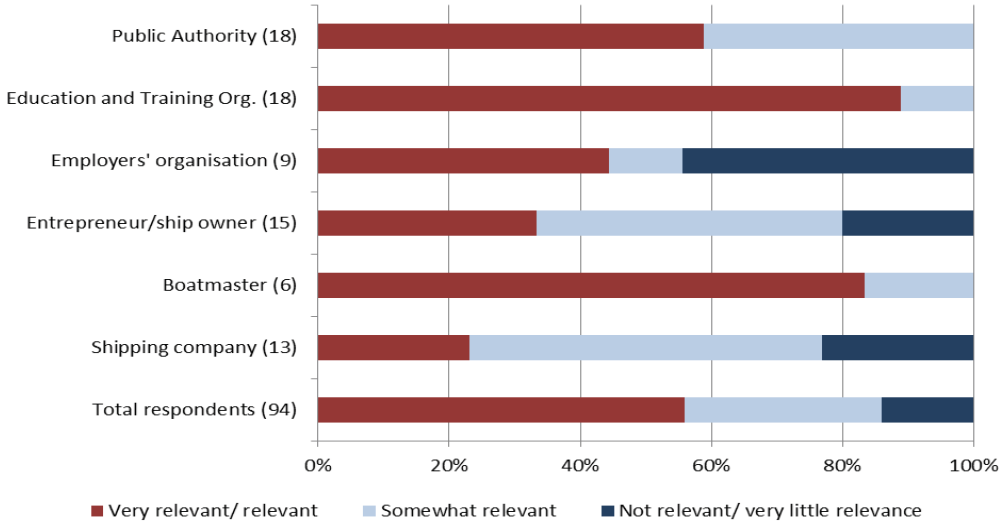


The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant, whereas the responses of the four ports range from "somewhat relevant" to "very relevant". In total, 75% of the respondents consider language problems as somewhat relevant to very relevant with regard to safety issues.

3.4.2. Problem driver 2: Language problems caused by crew members of different nationalities, resulting in communication problems

The perception of the importance of language problems for safety differs between groups of stakeholders. Whereas education and training organisations and boatmasters rate it as highly relevant (89% and 83% respectively), shipping companies and entrepreneurs/ship owners find it relatively less relevant. Despite this, almost 80% of both groups consider it either highly relevant or somewhat relevant. As shown in *Figure 16*, the opinion of employers' organisations is the most polarized.

Figure 16. Relevance of problem driver 2 (language problems) by type of stakeholder



The river commission and the worker's organisation that contributed to the public consultation rated this problem driver as highly relevant.

4. Assessment of policy objectives

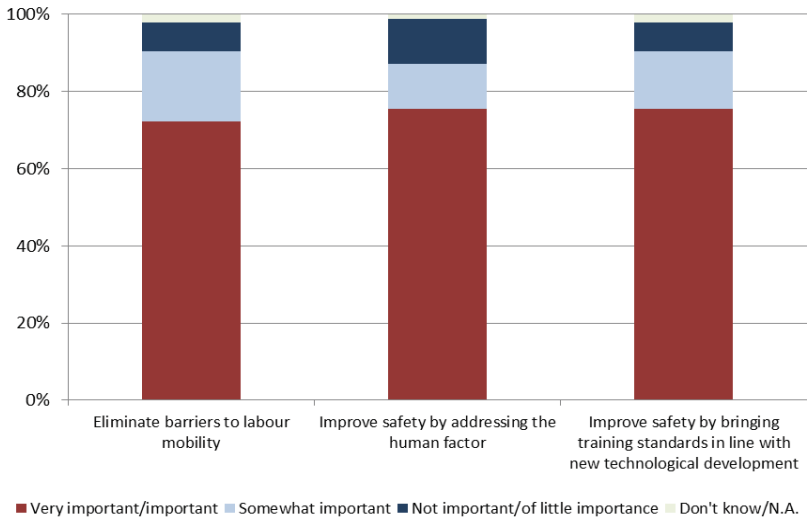
In this section of the public consultation, the Commission sought to identify the degree to which Member States and stakeholders agree with the proposed objectives of the future initiative.

4.1. Overall perception of relevance of different policy objectives

This section presents the overall perception of all stakeholders of the relative importance of different policy objectives of the future initiative regarding the recognition and modernisation of professional qualifications in inland navigation. Responses by type of stakeholder are found in section 4.2. As shown in *Figure 17*, the three policy objectives (eliminate barriers to

labour mobility and improve safety both by addressing the human factor and by bringing training standards in line with new technological development) are considered equally relevant, with around 75% of respondents considering them "very important" or "important". Overall, less than 10% of respondents consider the different policy objectives as not important.

Figure 17. Relevance of different policy objectives

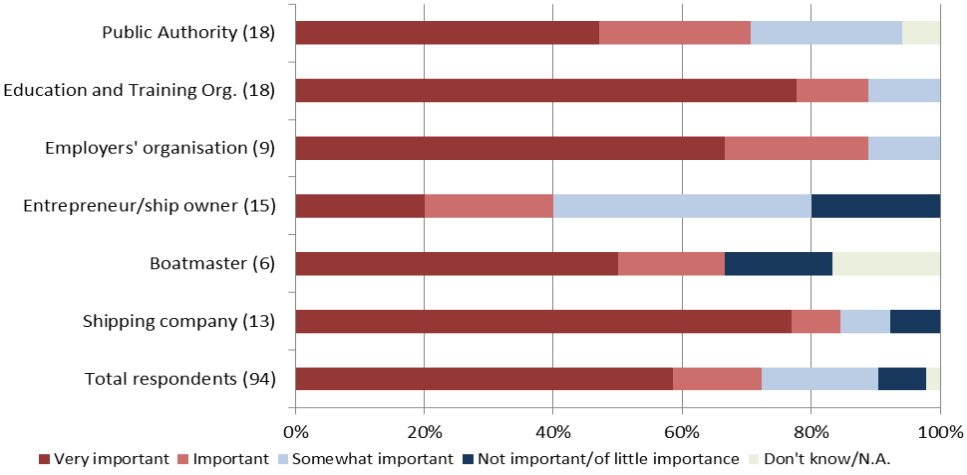


4.2. Relevance of policy objectives by type of stakeholder

4.2.1. Policy objective 1: Eliminate barriers to labour mobility

An important percentage of education and training organisations (89%), employers' organisations (89%), shipping companies (84%), public authorities (71%) and boatmasters (67%) consider this policy objective as "very important" or "important". Entrepreneurs/ship owners present a more dispersed opinion, with 40% of them considering it "somewhat important" and 20% of them stating that it is not an important objective.

Figure 18. Relevance of policy objective 1 by type of stakeholder

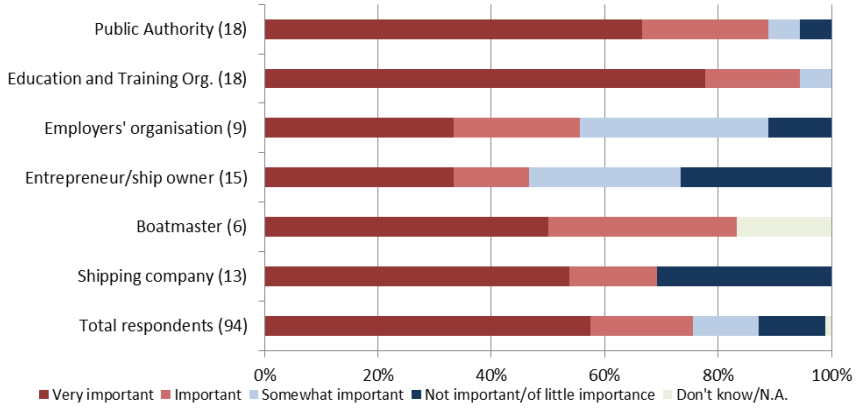


The river commission and the worker's organisation that contributed to the public consultation rated this policy objective as "very important", whereas the responses of the four ports range from "somewhat important" to "very important". As shown in *Figure 18*, the overall support to this policy objective is very high, with only 7% of total respondents considering it not important.

4.2.2. Policy objective 2: Improve safety in the IWT sector by addressing the human factor

With regards to policy objective 2, responses differ considerably between groups of stakeholders. Education and training organisations and public authorities consider that addressing the human factor to improve safety is a highly important objective (with 94% and 89% of them, respectively, stating that it is "very important" or "important"). The groups that in relative terms consider this objective as less important are entrepreneurs/ship owners and employers' organisations.

Figure 19. Relevance of policy objective 2 by type of stakeholder

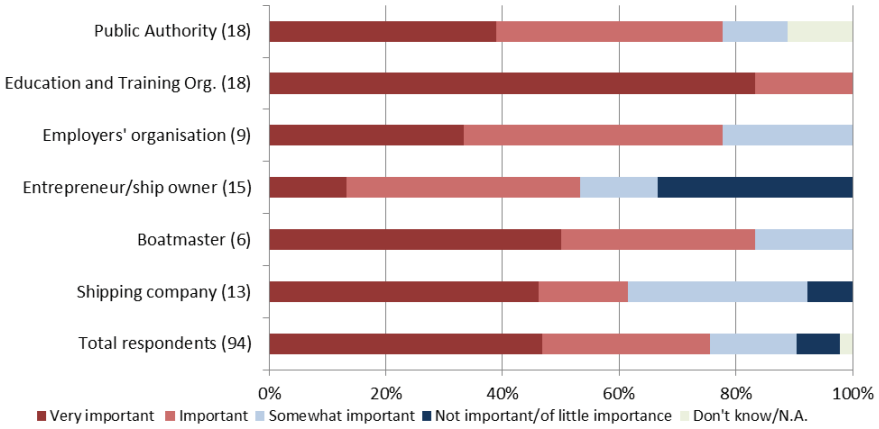


The river commission and the worker's organisation that contributed to the public consultation rated this policy objective as very important, whereas the responses of the four ports range from "somewhat important" to "very important".

4.2.3. Policy objective 3: Improve safety in the IWT sector by bringing training standards in line with new technological development

As shown in *Figure 20*, the support to this policy objective is high in almost all groups of stakeholders, with only 7% of total respondents considering it not important. All education and training organisations participating in the public consultation consider it either "very important" or "important", whereas the percentages are of 83% in the case of boatmasters and of 78% in the case of public authorities and employers' organisations. Moreover, more than 50% of entrepreneurs/ship owners and shipping companies find it highly relevant, a percentage that increases notably if responses "somewhat relevant" are also aggregated.

Figure 20. Relevance of policy objective 3 by type of stakeholder



The worker's organisation that contributed to the public consultation rated this policy objective as "very important", the river commission considers it "important" and the responses of the four ports range from "somewhat important" to "very important".

5. Assessment of policy options

The European Commission has identified a number of possible policy measures that may address the problem areas referred to above. The results presented in this section reflect the opinions of the different stakeholders with regards to the suitability of the different measures.

PROBLEM OF RESTRICTED LABOUR MOBILITY
Problem driver 1: Different requirements for professional qualifications of workers within the inland navigation sector
Policy measure 1: Extension of the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in SRBs
Policy measure 2: Introduction of mandatory harmonised requirements for age and physical and mental fitness for all crew members
Policy measure 3: Harmonisation of definitions of certain professional qualifications in inland navigation and mandatory harmonised requirements for these qualifications
Policy measure 4: Harmonised EU minimum training standards for professional qualifications in IWT
Policy measure 5: Introduction at EU level of a central register for EU boatmaster certificates
Policy measure 6: Introduction of voluntary measures from the inland navigation sector towards lowering labour mobility obstacles
Problem driver 2: Different requirements for professional qualifications for workers from outside the sector
Policy measure 7: Introduction of a common method for lowering the barriers for maritime sailing time/experience to qualify as inland navigation sailing time/experience
Problem driver 3: LKRs potentially preventing boatmasters to operate on a certain stretch of a river
Policy measure 8: Introduction of mandatory common criteria for establishing LKRs in the EU
Policy measure 9: Harmonisation of competency/examination requirements for LKRs

Policy measure 10: Introduction of non-binding recommendations regarding criteria for establishing LKRs in the EU
Policy measure 11: Introduction of non-binding recommendations regarding criteria for examination requirements for LKRs
Problem driver 4: Difficulty of extracting reliable information from SRBs needed for workers to prove their professional qualifications in order to allow operating in another country or other river basin
Policy measure 12: Introduction of a mandatory electronic SRB and a central register for e-SRB
Problem driver 5: Language problems preventing crew members of a different nationality to perform duties on vessels sailing on the EU inland waterways
Policy measure 13: Introduction of River Speak

PROBLEM OF SAFETY
Problem driver 1: Standards for professional training in inland navigation have not kept up with technological development
Policy measure 14: Harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation
Policy measure 15: Introduction of voluntary measures from the inland navigation sector towards improving safety
Problem driver 2: Language problems, caused by crew members of different nationalities, resulting in communication problems
Policy measure 13: Introduction of River Speak

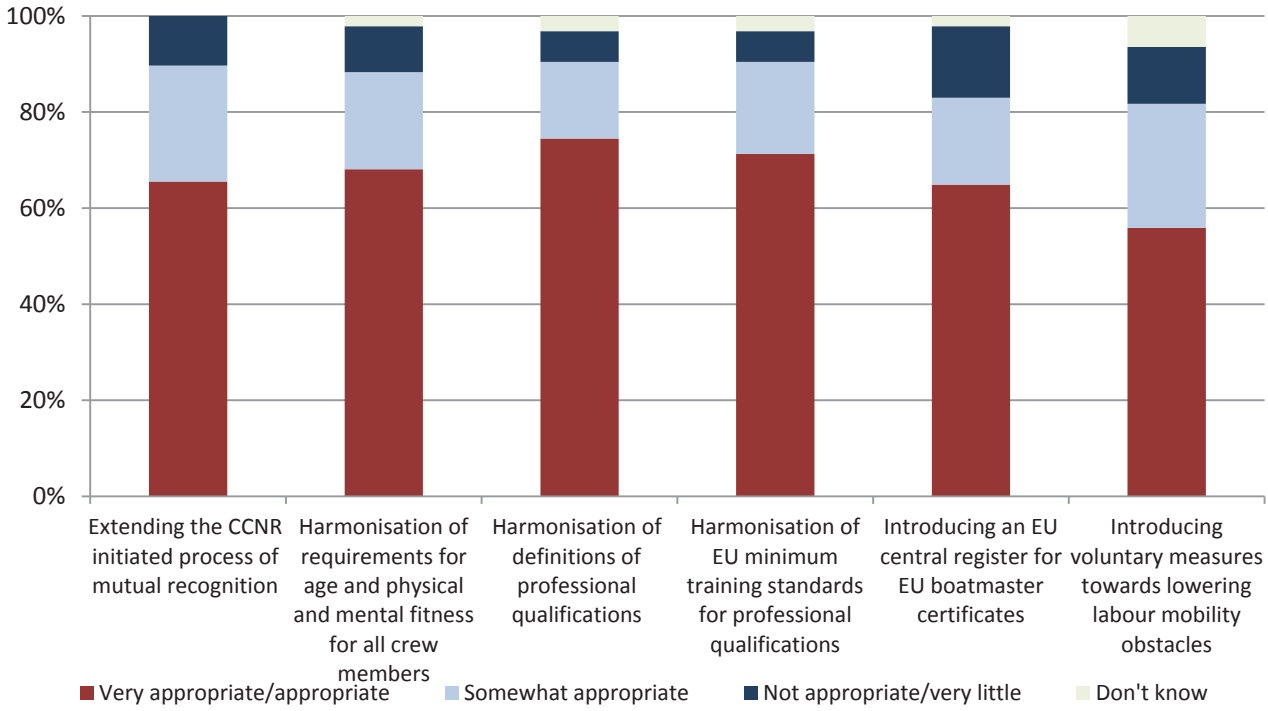
PROBLEM OF RESTRICTED LABOUR MOBILITY

5.1 Overall perception of relevance of different policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector

This section presents the overall perception of the relative suitability of different policy measures to deal with the problem of restricted labour mobility. It is important to note that these are the aggregated responses of all stakeholders. Disaggregation by type of stakeholder is found in section 5.2.

As shown in *Figure 21*, the harmonisation of definitions for certain professional qualifications in inland navigation and mandatory harmonized requirements for these qualifications (74%) and the harmonisation of EU minimum training standards for professional qualifications in inland navigation (71%) are, in relative terms, considered the most adequate policy measures, followed by the mandatory harmonisation of requirements for age and physical and mental fitness (68%). Introducing voluntary measures from the inland navigation sector towards lowering labour mobility obstacles is considered the least adequate policy measure in relative terms by all stakeholders (56%), followed by the measure of extending the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in Service Record Books (60%). It is important to note that less than 10% of respondents find these policy measures as not appropriate, with the exception of the introduction of an EU central register (15%). Therefore, there is an overall high support to these measures.

Figure 21. Relevance of different policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector



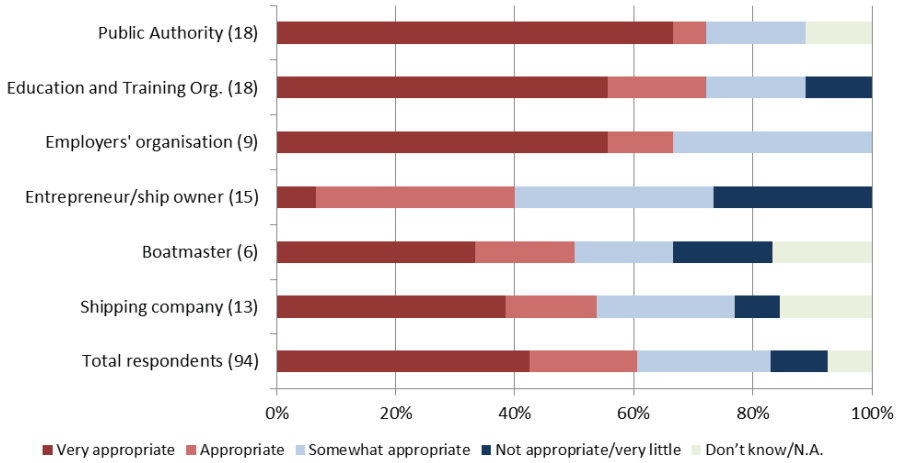
5.2. Relevance of policy measures to deal with the problem of restricted labour mobility due to different requirements for professional qualifications of workers within the inland navigation sector, by type of stakeholder

5.2.1. Policy measure 1: Extending the CCNR initiated process of mutual recognition of boatmaster certificates by establishing a mechanism for mutual recognition of professional qualifications in Service Record Books

As shown in *Figure 22*, extending the CCNR initiated process of mutual recognition would be considered "very adequate" or "adequate" by 72% of public authorities and education and training organisations and by 67% of employers' organisations that responded to the public

consultation. At the same time, the responses of around 70% of entrepreneurs/ship owners, shipping companies and boatmasters range between "very appropriate" and "somewhat appropriate". Entrepreneurs/ship owners are the group that register more "not appropriate" responses.

Figure 22. Relevance of policy measure 1 by type of stakeholder

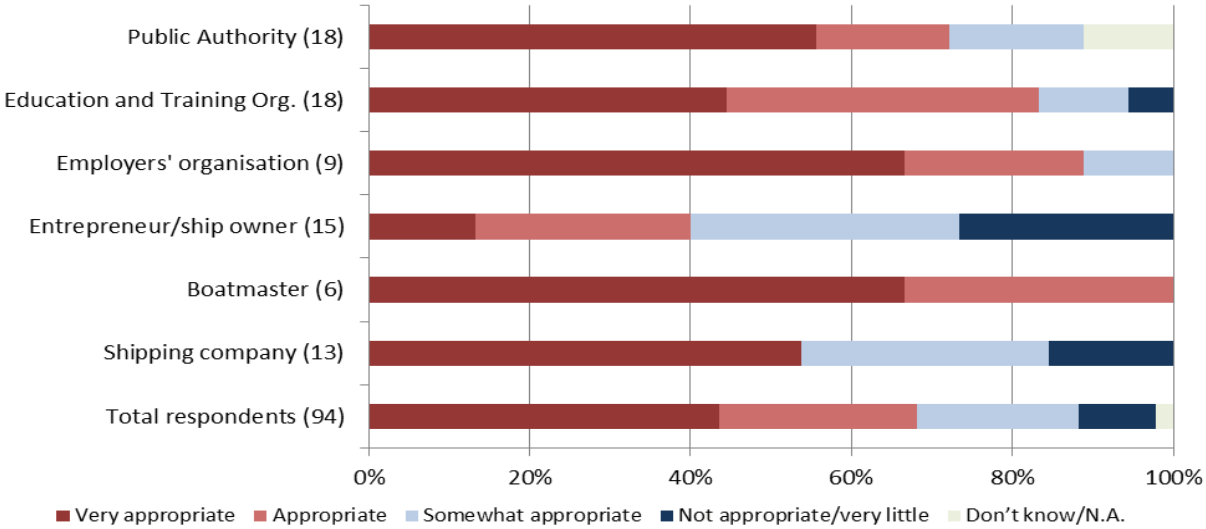


The workers' organisation that contributed to the public consultation rated this policy measure as "very appropriate", the river commission rates it "somewhat appropriate" and the responses of the four ports range between "very appropriate" and "somewhat appropriate".

5.2.2. Policy measure 2: Mandatory harmonised requirements for age and physical and mental fitness for all crew members

All boatmasters, 88% of employers' organisations, 83% of education and training organisations and 72% of public authorities that answered to the public consultation consider that this policy measure would be "appropriate" or "very appropriate" to deal with the problem of labour mobility. The percentages are lower for the other types of stakeholders, in particular for entrepreneurs/ship owners (40%). Despite this, it is important to note that 85% of shipping companies and 73% of entrepreneurs/ship owners consider it, at least, "somewhat appropriate".

Figure 23. Relevance of policy measure 2 by type of stakeholder



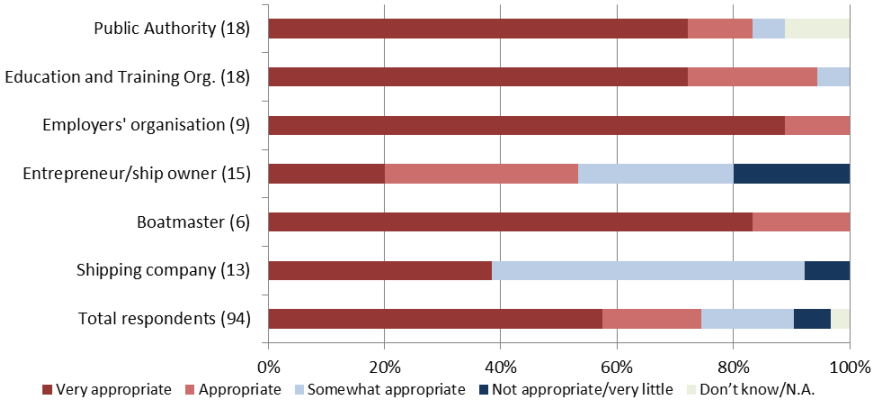
The river commission contributing to the public consultation rated this policy measure as "appropriate", whereas the workers' organisation considers it "somewhat appropriate".

5.2.3. Policy measure 3: Harmonisation of definitions of certain professional qualifications in inland navigation and mandatory harmonised requirements for these qualifications

This measure is considered "very appropriate" or "appropriate" by all employers' organisations and boatmasters that contributed to the public consultation, and by a high percentage of education and training organisations (94%), and public authorities (83%). The majority of shipping companies consider it "somewhat appropriate" (53%), whereas the opinion of entrepreneurs/ship owners is more divided. Moreover, the river commission and the worker's organisation contributing to the public consultation rated this policy measure as "very appropriate".

When asked for which crew members they consider that policy measures 2 and 3 would be most appropriate, **60% of respondents said that they should apply to boatmasters and other crew members**, whereas 24% answered they should only apply to boatmasters.

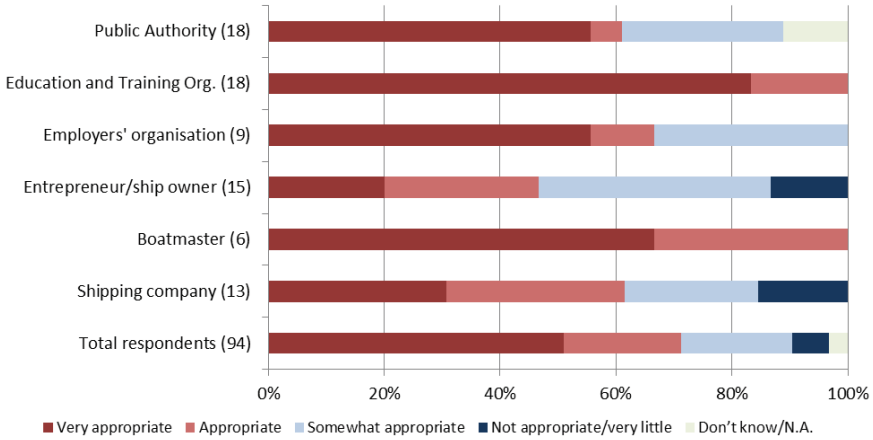
Figure 24. Relevance of policy measure 3 by type of stakeholder



5.2.4. Policy measure 4: Harmonised EU minimum training standards for professional qualifications in inland navigation

Harmonising the EU minimum training standards for professional qualifications in inland navigation is considered a highly appropriate policy measure by all education and training organisations and by all boatmasters that contributed to the public consultation, as well as by 67% of employers' organisations, 61% of shipping companies and 61% of public authorities. The opinion of entrepreneurs/ship owners is more divided, but only 13% consider it not appropriate. It is important to note that more than 90% of all respondents consider this policy measure at least "somewhat appropriate".

Figure 25. Relevance of policy measure 4 by type of stakeholder



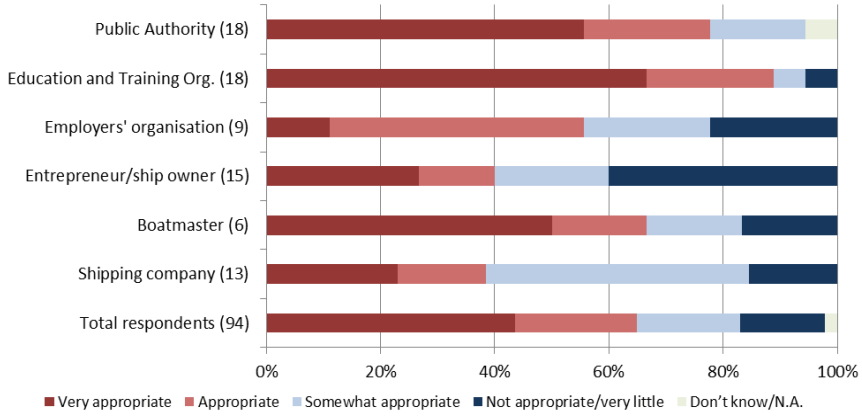
The river commission and the worker's organisation that contributed to the public consultation rated this policy measure as "very appropriate", whereas the four ports consider it either "appropriate" or "very appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate, **61% of respondents stated that it should apply to boatmasters and other crew members**, whereas 28% answered it should only apply to boatmasters.

5.2.5. Policy measure 5: Introducing at EU level of a central register for EU boatmaster certificates

Introducing a central register for EU boatmaster certificate is perceived by the majority of education and training organisations and by public authorities that participated in the public consultation as highly appropriate (with 89% and 78% of their respondents considering it "very appropriate" or "appropriate", respectively), followed by boatmasters (67%). Around 40% of shipping companies and entrepreneurs/ship owners consider it highly appropriate, and the percentage increases notably when "somewhat appropriate" is also taken into account.

Figure 26. Relevance of policy measure 5 by type of stakeholder

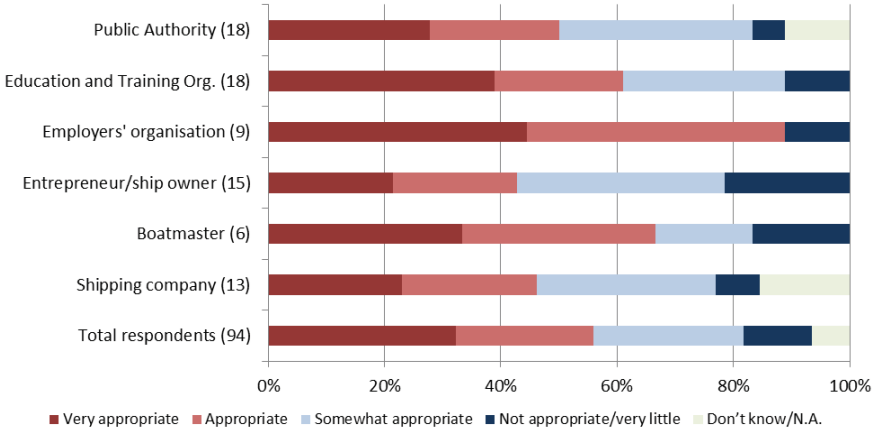


The river commission and the worker's organisation that contributed to the public consultation rated this policy measure as "very appropriate", whereas the four ports consider it either "appropriate" or "very appropriate".

5.2.6. Policy measure 6: Introducing voluntary measures from the inland navigation sector towards lowering labour mobility obstacles

As shown in *Figure 27*, approximately 80% of respondents of all groups of stakeholders consider this policy measure, at least, "somehow appropriate". The groups that register higher percentage of highly appropriate responses are employers' organisations, with 89% of respondents considering the measure as either "very appropriate" or "appropriate", boatmasters (67%) and education and training organisations (61%). The workers' organisation that contributed to the public consultation rated this policy measure as "very appropriate", the river commission considers it "somewhat appropriate" and the responses of the four ports range between "very appropriate" and "somewhat appropriate".

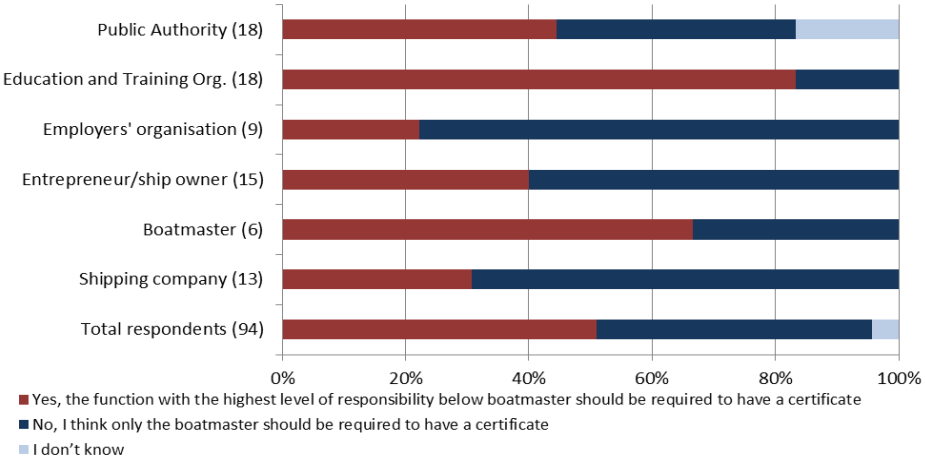
Figure 27. Relevance of policy measure 6 by type of stakeholder



5.2.7. Additional issues: certification of professional qualification

Stakeholders were invited to comment on a number of aspects related to the policy measures previously presented. In particular, this section presents the answers given to questions related to the system of certification of professional qualifications for boatmasters. One of these questions was: "Do you think it is necessary to extend the requirement for certification also to the highest rank under the level of boatmaster?" Responses differ substantially by type of stakeholder (see graph below). While the majority of respondents from education and training organisations gave a positive response (83%), followed by boatmasters (67%), the majority of respondents of other groups of stakeholders consider that only boatmasters should be required to have a certificate, in particular employers' organisations (78%), shipping companies (70%) and entrepreneurs/ship owners (60%).

Figure 28. Extension of certification to the highest rank of responsibility below boatmasters



Stakeholders were also asked about the appropriateness of introducing a modular certification system for boatmasters, which would imply the introduction of specific requirements for certificates with regard to waterways on maritime character, operation of only small vessels on small waterways, and operation of large convoys. *Figure 29* presents the stakeholders' responses. In this case, more than one answer was allowed. Half of the respondents considers that such a modular system should maintain the current specific requirements for boatmasters that operate on waterways of maritime character, 42% of them consider that the modular system should introduce specific more stringent requirements for boatmasters operating large convoys, and 39% of them consider that it should introduce less stringent requirements for boatmasters operating in small vessels on small waterways.

Figure 29. Differentiation of boatmasters certificates

	Number	% of respondents
Yes, such a modular system should maintain the current specific (more stringent) requirements for boatmasters that operate on **waterways of maritime character**	47	50%
Yes, such a modular system should introduce specific (less stringent) requirements for boatmasters that operate **small vessels on small waterways only**	37	39.4%

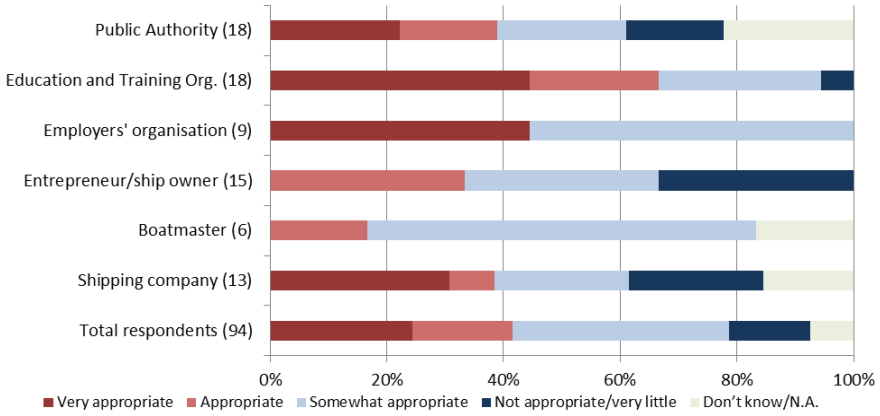
Yes, such a modular system should introduce specific (more stringent) requirements for boatmasters that operate **large passenger vessels**	33	35.1%
Yes, such a modular system should introduce specific (more stringent) requirements for boatmasters that operate **large convoys**	39	41.5%
Yes, such a modular system is important and **other categories need to be considered**	16	17%
No, there is **no need for such a differentiated approach**	12	12.8%
I don't know	11	11.7%
Total	**195**	**-**

5.3. Relevance of policy measure 7 ("Introduction of a common method for lowering the barriers for maritime sailing time/experience to qualify as inland navigation sailing time/experience") to deal with the problem of restricted labour mobility due to different requirements for professional qualifications for workers from outside the sector

The majority of stakeholders answering to this public consultation find this policy measure at least somewhat appropriate. 67% of education and training organisations and 44% of employers' organisations find it either "very appropriate" or "appropriate", whereas boatmasters are the group of stakeholders presenting a lower percentage of these responses. Nevertheless, it is important to note that more 80% of them consider it at least somewhat appropriate. Public authorities, entrepreneurs/ship owners and shipping companies are considerably divided in their responses. Additionally, the workers' organisation, the river commission and two of the four ports contributing to this public consultation rate this policy measure as "somewhat appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate, **53% of respondents said that it should apply to boatmasters and other crew members**, 17% answered it should only apply to boatmasters, and 17% answered that answered it should only apply to other crew members.

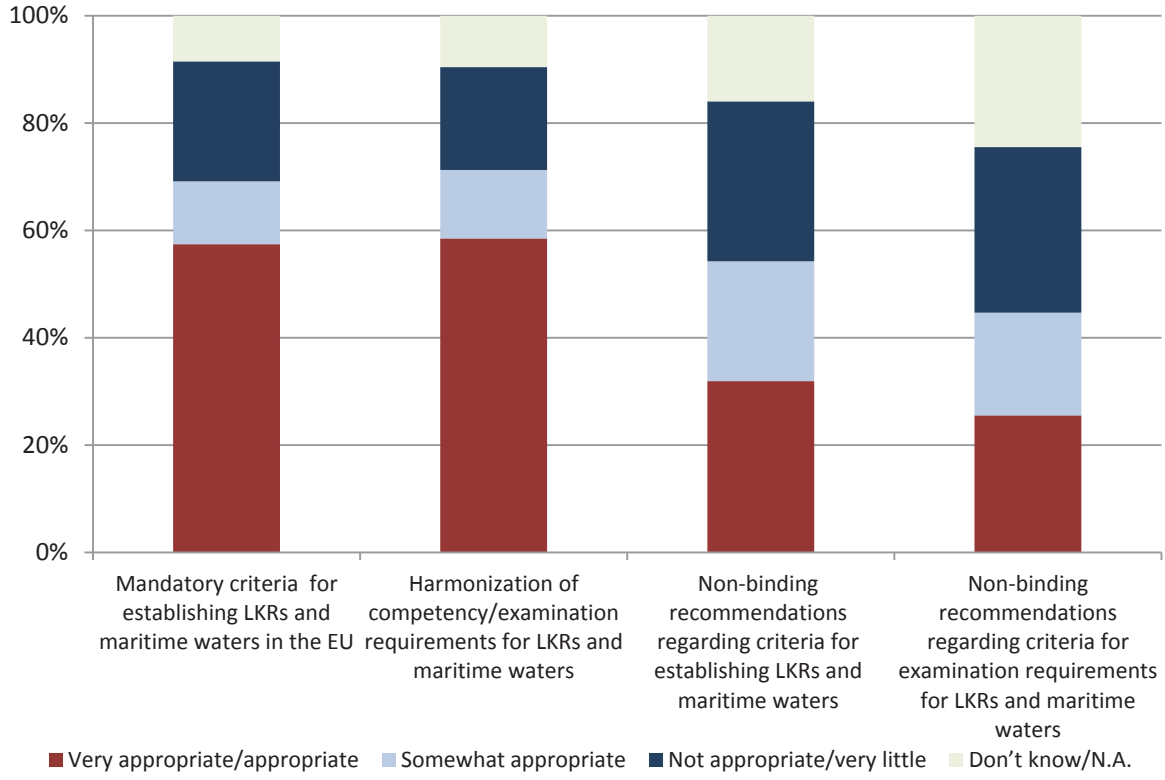
Figure 30. Relevance of policy measure 7 by type of stakeholder



5.4. Overall perception of relevance of different policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river

This section presents the overall perception of all respondents of the relative suitability of different policy measures to deal with the problem of restricted labour mobility due to local knowledge requirements. As shown in *Figure 31*, the harmonisation of competency/examination requirements (59%) and the establishment of mandatory common criteria for establishing LKRs in the EU (57%) are, in relative terms, considered the most adequate policy measures. The two remaining measures implying non-binding recommendations are perceived as relatively less appropriate.

Figure 31. Relevance of different policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river



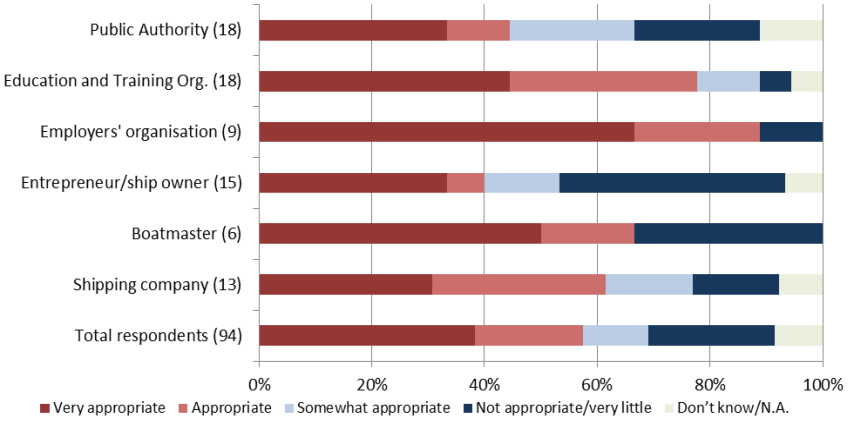
53% of the respondents consider that the **use of simulators** in training programmes or exams could lead to a reduction of training or experience requirements for LKRs, whereas 37% of respondents do not agree with the previous statement.

5.5. Relevance of policy measures to deal with the problem of restricted labour mobility due to LKRs potentially preventing boatmasters to operate on a certain stretch of a river, by stakeholder

5.5.1. Policy measure 8: Mandatory common criteria for establishing LKRs in the EU

This policy measure is considered highly appropriate by the majority of employers' organisations (89% of them rating it either "very appropriate" or "appropriate"), education and training organisations (78%), boatmasters (67%) and shipping companies (62%), whereas it receives lower support from entrepreneurs/ship owners (40%) and public authorities (44%). However, more that 50% of them rate this policy measure at least "somewhat appropriate". Additionally, the river commission contributing to this public consultation considers this measure as "very appropriate".

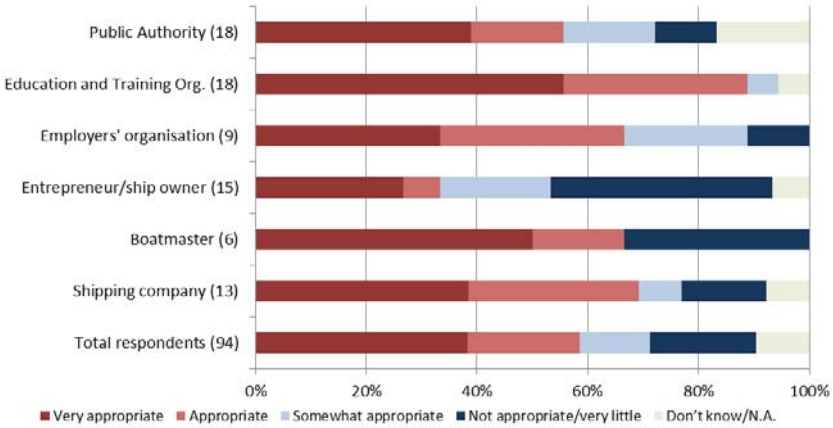
Figure 32. Relevance of policy measure 8 by type of stakeholder



5.5.2. Policy measure 9: Harmonisation of competency/examination requirements for LKR

As shown in *Figure 33*, the distribution of opinions about the appropriateness of this policy measure varies by type of stakeholder. The majority of education and training organisations consider it highly appropriate (89%), followed by shipping companies (69%), boatmasters (67%), employers' organisations (67%) and public authorities (56%). Even though 40% of entrepreneurs/ship owners find it "not appropriate", it should be noted that 53% of their respondents consider the measure at least "somewhat appropriate". The river commission contributing to this public consultation considers this policy measure as "very appropriate".

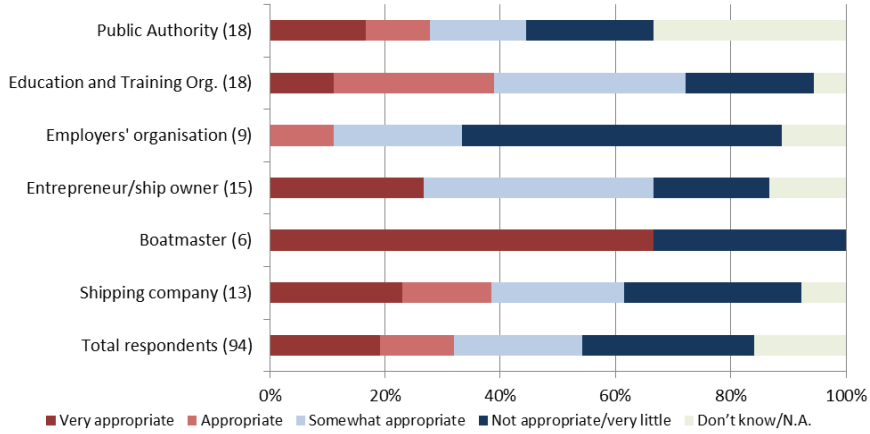
Figure 33. Relevance of policy measure 9 by type of stakeholder



5.5.3. Policy measure 10: Non-binding recommendations regarding criteria for establishing LKRs in the EU

In general, this policy measure receives low support by the different groups of stakeholders, with the only exception of boatmasters. As shown in *Figure 34*, most of the other groups of stakeholders consider this policy measure as either "not appropriate" or only "somewhat appropriate".

Figure 34. Relevance of policy measure 10 by type of stakeholder

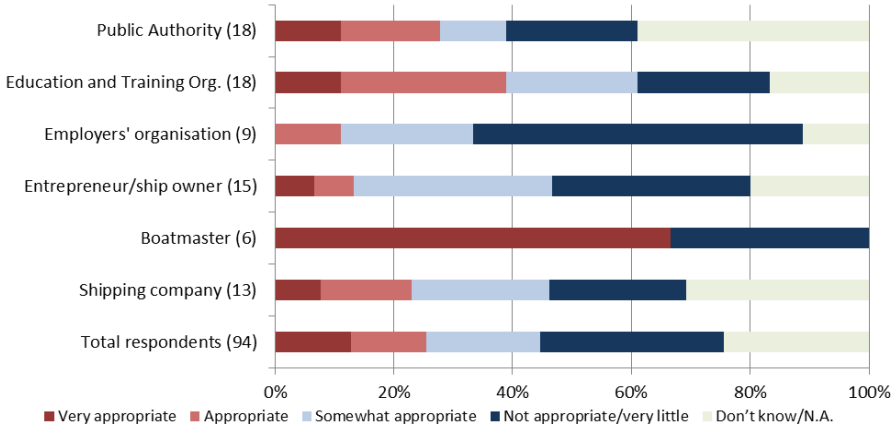


The river commission and two of the four ports contributing to this public consultation consider this policy measure as "not appropriate", whereas the other two ports and the workers' organisation did not provide an answer.

5.5.4. Policy measure 11: Non-binding recommendations regarding criteria for examination requirements for LKR

Similarly to the previous measure, the establishment of non-binding recommendations regarding criteria for examination requirements for LKR is in general not considered an appropriate measure to deal with the problem of restricted labour mobility. This policy measure registers the lowest support among stakeholders, with the only exception of boatmasters. The river commission and two of the four ports contributing to this public consultation consider this policy measure as "not appropriate". The other two ports and the workers' organisation do no provide an answer.

Figure 35. Relevance of policy measure 11 by type of stakeholder

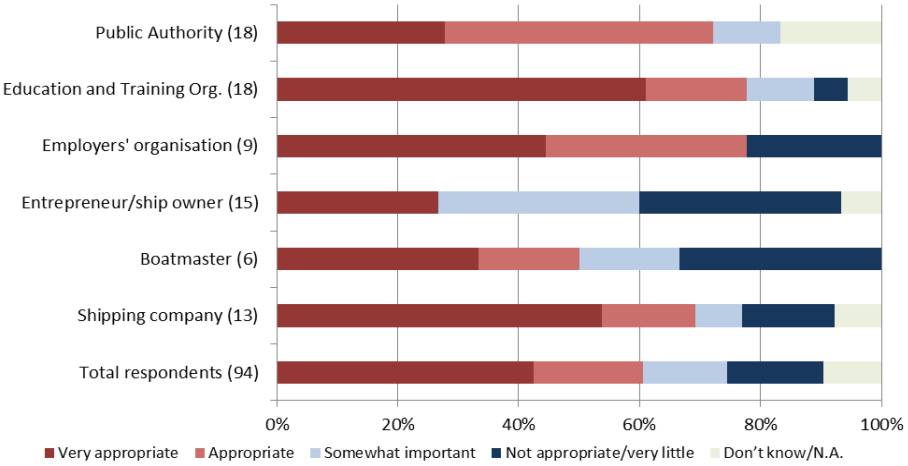


When asked whether the **information provided by River Information Services** could replace in certain cases the need for local knowledge requirements, 52% of the respondents answered "yes, sometimes", 22% answered "never", and 18% answered "yes, always".

5.6. Relevance of policy measure 12 ("Introduce a mandatory electronic SRB and a central register for e-SRB") to deal with the difficulty of extracting reliable information from SRBs needed for workers to prove their professional qualifications, by stakeholder

Introducing a mandatory electronic SRB is considered appropriate by 78% of education and training organisations, 78% of employers' organisations and 72% of public authorities. Despite registering a lower percentage of "very appropriate" and "appropriate" responses than the previously mentioned groups, more than 60% of shipping companies, boatmasters and entrepreneurs/ship owners consider it at least "somewhat appropriate". The specific distribution of responses is shown in *Figure 36*.

Figure 36. Relevance of policy measure 12 by type of stakeholder

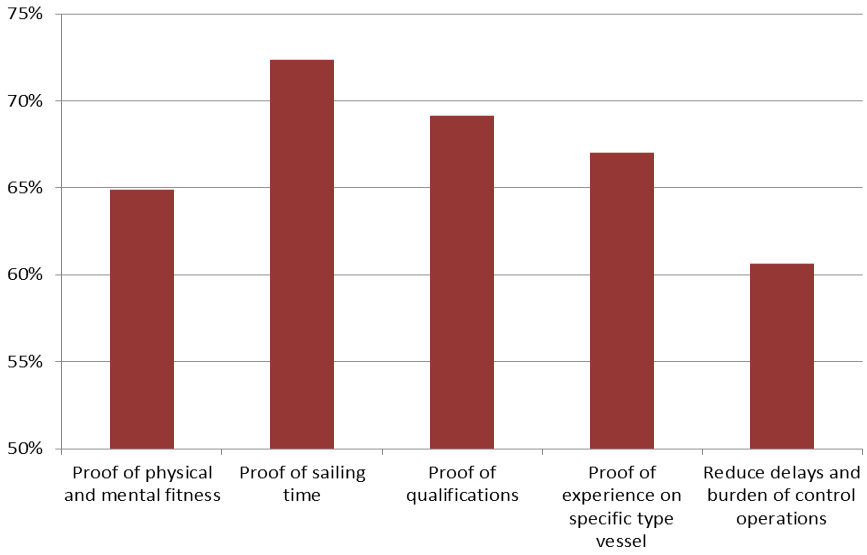


The workers' organisation participating to this public consultation consider this policy measure "very appropriate", whereas the river commission rates it as "very appropriate".

When asked about which crew members they consider that this policy measure would be most appropriate for, **52% of respondents answered boatmasters and other crew members**, 16% answered only boatmasters and 16% answered only other crew members. When asked whether they think that introducing electronic SRBs would be beneficial for inland navigation, 74% of the stakeholders responded positively. Furthermore, 64% of the respondents consider that the introduction of electronic SRBs should be accompanied by the introduction of **electronic logbooks** (for instance to verify entries made in the e-SRB with regard to sailing time).

Stakeholders where additionally asked for what purposes would the e-SRB be used. *Figure 37* below shows the percentage of total stakeholders that stated that they "totally agree" or "tend to agree".

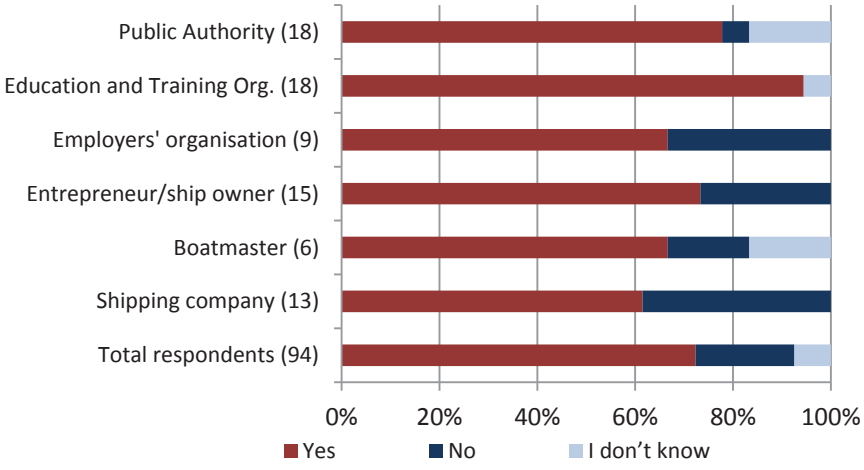
Figure 37. Use of the e-SRBs



5.7. Relevance of policy measure 13 ("Introduction of River Speak") to deal with the problem of restricted labour mobility derived from language problems

The introduction of River Speak or other language-neutral means of communication in the training programmes and as a part of professional qualifications is considered by 72% of stakeholders contributing to the public consultation as a measure that could help addressing the problem of mobility of IWT workers. As shown in *Figure 38*, education and training organisations are the group that presents a higher support to this measure (94%), followed by public authorities (78%) and entrepreneurs/ship owners (73%). 60% of shipping companies rate the measure as relevant to improve labour mobility, despite being the group that gives the lowest support to the measure, in relative terms. The river commission and the workers' organisation that participated in the public consultation also consider this measure as very appropriate.

Figure 38. Relevance of policy measure 13 to deal with the problem of mobility, by type of stakeholder

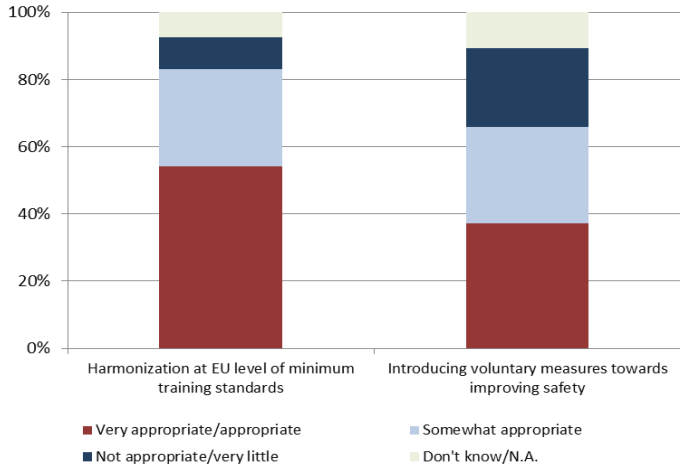


PROBLEM OF SAFETY

5.8 Overall perception of relevance of different policy measures to deal with the safety problem related to the fact that the standards for professional training in inland navigation have not kept up with technological development

This section presents the relative importance of different policy measures to the problem of safety, as results from the responses of all the stakeholders participating in the public consultation. Responses by type of stakeholder are found in the following section 5.8. As shown in *Figure 39*, the harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation is in relative terms considered more appropriate to deal with safety problems than introducing voluntary measures (83% of respondents consider harmonisation "somewhat appropriate", "appropriate" or "very appropriate", versus 66% in the case of voluntary measures). Only 10% considers the harmonisation measures as not appropriate, whereas this figure rises up to 23% for the voluntary measures.

Figure 39. Relevance of policy measures to deal with the safety problem related to the fact that standards for professional training have not kept up with technological development



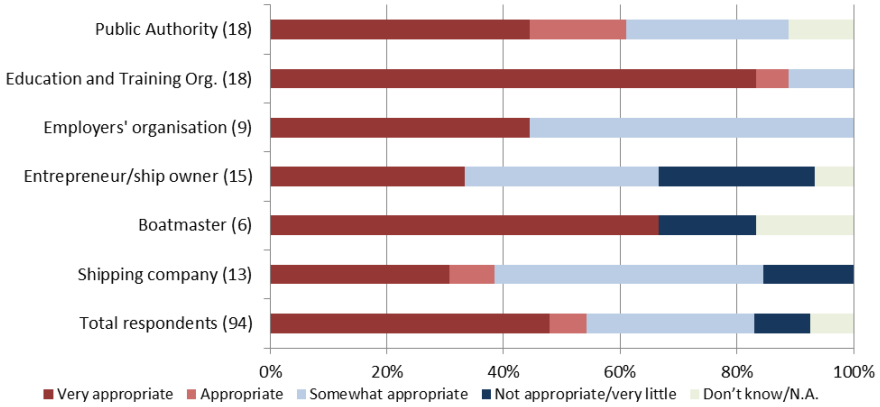
Stakeholders were asked whether the **use of simulators** in inland navigation training and education programmes would increase safety in the sector. The majority of respondents (84%) answered positively.

5.9. Relevance of policy measures to deal with the safety problem related to the fact that the standards for professional training in inland navigation have not kept up with technological development, by type of stakeholder

5.9.1. Policy measure 14: Harmonisation at EU level of minimum training standards for all professional qualifications in inland navigation

The distribution of responses with regards to the appropriateness of this policy measure differs notably by group of stakeholder. Approximately 90% of education and training organisations consider it highly appropriate, followed by 67% of boatmasters and 61% of public authorities. At the same time, employers' organisations, shipping companies and entrepreneurs/ship owners present a higher percentage of "somewhat important" responses.

Figure 40. Relevance of policy measure 14 by type of stakeholder



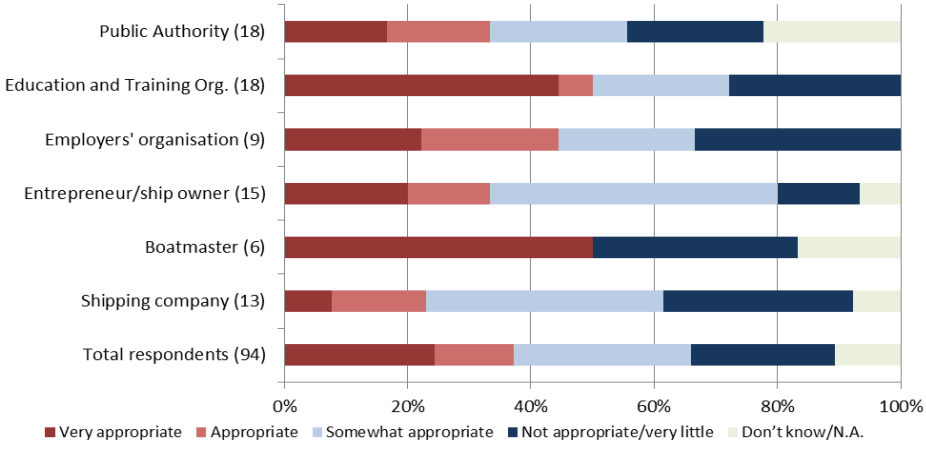
The river commission contributing to this public consultation considers that this policy measure is "very appropriate", whereas the workers' organisation finds it "appropriate". The opinion of ports is highly dispersed in this case. It is important to note that, in general, more than 80% of respondents find this policy measure, at least, "somewhat important".

When asked for which crew members you consider that this policy measure would be the most appropriate, **71% of respondents answered boatmasters and other crew members**, whereas 17% stated only boatmasters.

5.9.2. Policy measure 15: Introducing voluntary measures from the inland navigation sector towards improving safety

The perception of the appropriateness of this measure to deal with the problem of safety is comparatively more dispersed than in previous cases. The majority of respondents of all groups of stakeholders perceive this measure as at least "somewhat appropriate". Education and training organisations and boatmasters are the groups registering a higher percentage of "very appropriate" or "appropriate" responses, with 50% of the respondents in each case.

Figure 41. Relevance of policy measure 15 by type of stakeholder

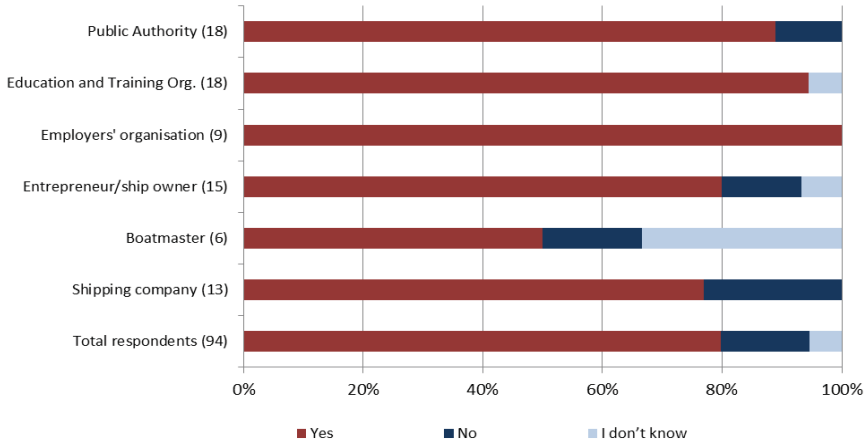


The river commission participating in this public consultation considers that this policy measure is "somewhat appropriate".

5.10. Relevance of policy measure 13 ("Introduction of River Speak") to deal with the safety problem derived from language problems

Around 80% of the respondents consider that the introduction of River Speak or other language-neutral means of communication in the training programmes and as a part of professional qualifications would help improving the levels of safety in the sector. As shown in *Figure 42*, all employers' organisations that participated in this public consultation give support to this measure, followed by 94% of education and training organisations, 89% of public authorities, 80% of entrepreneurs/ship owners and 77% of shipping companies. The workers' organisation and the river commission participating in this public consultation also have a positive opinion on this measure.

Figure 42. Relevance of policy measure 13 to deal with problem of safety, by type of stakeholder



6. Regional differences in the impact of the measures

The stakeholders in the online public consultation were asked to compare harmonised requirements measures with voluntary measures. The main results for two important river areas, the Rhine and Danube, are summarized below:

- With regard to labour mobility, mandatory harmonised professional qualifications and training standards will, according to 85% of CCNR stakeholders, and a bit less than 80% of Danube stakeholders, result in fairly to very positive effects on labour mobility. For voluntary measures these percentages are respectively around 50% and 60%.
- With regard to administrative burden: mandatory harmonised professional qualifications and training standards will, according to 54% of CCNR stakeholders and more than 70% of Danube stakeholders, result in fairly to very positive effects on the administrative burden. For voluntary measures these percentages are respectively around 23 and 62%.
  With regard to safety: mandatory harmonised professional qualifications and training standards will according to around 90% of CCNR stakeholders, and more than 85% of Danube stakeholders result in fairly to very positive safety effects. For voluntary measures these percentages are both only around 60%. For the voluntary approach, respectively 8 and 4 % of CCNR and Danube respondents foresee negative effects.

The online public consultation revealed similar support both from the CCRN and the Danube region

7. Conclusions

The responses received within the online public stakeholder consultation on the "Recognition and modernisation of professional qualifications in inland navigation" confirm that the problems of restricted labour mobility and safety identified by the European Commission are of high importance and need to be dealt with, in order to remove the barriers between EU Member States for exercising professions in the field of inland navigation. The majority of the respondents considered the different problem drivers and subsequent policy objectives identified as highly relevant.

The online consultation also gathered information about the opinion of different groups of stakeholders with regards to the appropriateness of 15 different policy measures. The responses received confirm a high level of support to measures implying the harmonisation of professional requirements, qualifications and examinations in inland navigation between EU Member States, whereas the introduction of voluntary measures or non-binding recommendations receives a considerably lower level of support.

The voice of the stakeholders on specific problems and measures gathered through this public consultation will help the European Commission to devise a set of appropriate policy measures during the process of elaboration of the impact assessment accompanying a potential legislative proposal on the recognition and modernisation of professional qualifications in inland navigation.

Annex 2:
Estimated number of IWT workers

Table 1 Estimated number of workers in 2011

Countries	Total freight	Total passenger	Total IWT employment	Total boatmasters	Total operational staff
Netherlands*	10,820	3,088	13,908	6,053	7,855
Germany*****	*2,774*	*2,815*	5,589	1,337	4,252
France*	*1,673*	*2,027*	*3,700*	790	2,910
Luxembourg**	*2,555*	*256*	*2,811*	668	2,143
Italy*	634	1,919	2,553	1,290	1,263
Belgium*	*1,851*	*548*	2,399	1,659	740
Romania*	2,081	248	2,329	491	1,838
Bulgaria*/***	1,385	*294*	*1,679*	911	768
Switzerland	417	1,197	1,614	416	1,198
Sweden*	118	983	1,101	250	851
United Kingdom*	299	752	1,051	263	788
Hungary*	267	600	867	201	666
Portugal**	0	853	853	55	798
Czech Republic*	*517*	*283*	*800*	135	665
Poland*	*313*	*303*	616	284	332
Slovakia*	*413*	*31*	444	89	355
Spain*	44	344	388	62	326
Finland*	39	228	267	41	226
Austria*	*51*	*157*	208	88	120
Lithuania*	*0*	145	145	11	134
Denmark*/**	*48*	*95*	*143*	24	119
Croatia*/**	*121*	*12*	133	20	113
Latvia*	89	17	106	5	101
Estonia**	0	61	*61*	7	54
Slovenia*	*40*	*21*	*61*	38	23
Total	**26,549**	**17,277**	**43,826**	**15,190**	**28,636**

* Based on division between mobile workers and self-employed given by EUROSTAT for 2010
** Based on number of enterprises in 2010 (or most recent information) and the average number of self-employed and average number of workers per enterprise.
*** Based on survey carried out in 2013 under Ministries, Trade unions and Employer organisations in EU-28.
**** Based on share freight and passenger vessel within the IVR ship registration for the 2011.
***** Based on available statistics for 2011.

Source: Ecorys (2013), updated by Panteia (2014).

Annex 3:
Baseline scenario: evolution of current IWT labour market (demand supply model)

This Annex is an extract from the study « Contribution to the problem definition in the context of the preparation of the Impact Assessment: Recognition of professional qualification and training standards in inland navigation" (Panteia 2014, pages 59-71 as well as Appendix 4 of Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment). The extract provides the assumptions, methodology and calculations supporting the demand supply model developed by Panteia, and underpinning the evidence in the problem definition, baseline scenario and assessment of impact of this IAR.

Introduction

In this Annex, the evolution of the IWT labour market will be further described. Building on the data from the earlier chapters, a labour market model is set up that takes account of the demand for IWT workers on the one hand and the supply of IWT workers on the other hand. This will be done for each IWT corridor and altogether, so that regional differences in the demand/supply gap over time can be identified. A sensitivity analysis will test for the impact of changes in the assumptions that have been made.

Demand for workers for different IWT corridors

The demand for workers in the inland navigation sector is related to the total number of vessels (and the amount of cargo transported) and the manning requirements. In the study concerning the European Agreement on Working Time in IWT[13], the total amount of workers needed in EU IWT has been forecasted from now up to 2050, taking into account the enlargement of the fleet and the prospected growth of IWT transport.

This demand of labour has been distributed proportionally over four main IWT corridors in Europe. The corridors and the countries which are in these corridors can be seen in Table 1.

Table 1 Corridor-country matrix

	Rhine	North-South*	Danube	East-West**
Netherlands	X	X		X
Belgium	X	X		
Germany	X			X
Poland				X
France	X	X		
Switzerland	X			
Austria			X	
Slovakia			X	
Czech Republic				X
Hungary			X	
Romania			X	
Bulgaria			X	

** The North-South corridor includes the following river basins: Scheldt, Rhône, Meuse and Seine*
*** The East-West corridor includes the following river basins: Elbe, Weser and Odra*

[13] Ecorys (2013), Study on the costs and benefits of the implementation of the European Agreement on working time in inland waterway transport – A comparison with the status quo

Source: Panteia (2013)

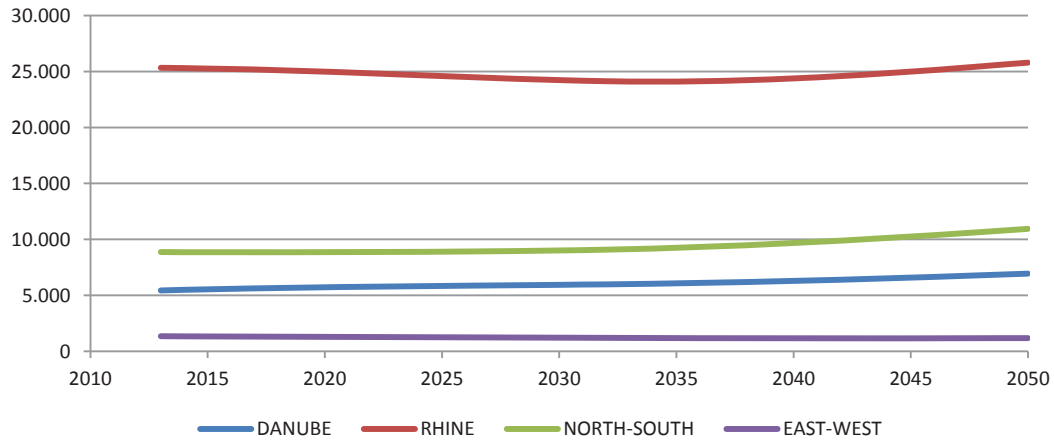
Demand of workers

The demand of workers is determined as follows:

1. The distribution of the demand for workers over the various corridors is related to the amount of cargo transported on these corridors.
2. The total amount of cargo transported on the corridors has been determined for 2007, 2020 and 2040 (NEA et al., 2011).
3. Extrapolating this data resulted in the amount of cargo transported in the years in between the intervals and after 2040.
4. As smaller vessels operate on the North-South and East-West and thus traffic on these corridors is more labour-intensive. A multiplication factor of 1.5 is used for traffic on these corridors for the extra personnel needed.
5. Dividing the values for each corridor by the total, will give the ratios for the distribution for demand of workers.
6. Multiplying the ratios by the total demand of workers as determined in Ecorys (2013)[14] will give the demand of workers per corridor per year.

The results of the proportional distribution of labour demand (for both operational workers and boatmasters) for the period 2013 - 2050 can be seen in Figure 1. Figures are presented in Annex 5, table A2 of the external study[15].

Figure 1Demand for workers in IWT sector (operational workers and boatmasters)



Source: Panteia (2013), based on Study on the costs and benefits of the implementation of the European Agreement on working time in inland waterway transport – A comparison with the status quo (Ecorys, 2013), adjusted for corridors and the projected transport performances in 2020 and 2040 in Medium and Long Term Perspectives of IWT in the European Union, Annex 2. NEA (2011).

Figure 1 shows that the demand for workers is expected to increase at the start of 2035. This can be seen for all corridors, however, the amount of workers needed in the Rhine corridor will increase more steeply. A small decline can be noted on the Rhine corridor up to 2035,

[14] Ecorys et al. (2013), Study on the costs and benefits of the implementation of the European Agreement on working time in inland waterway transport – A comparison with the status quo.

[15] Panteia (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment: Recognition of professional qualification and training standards in inland navigation.

whilst the demand of workers on the Danube and North-South corridor is expected to increase slightly. In general, the demand of workers is expected to decrease up to 2035, as can be seen from Figure 1 and Annex 5, Table A2 of the external study[16].

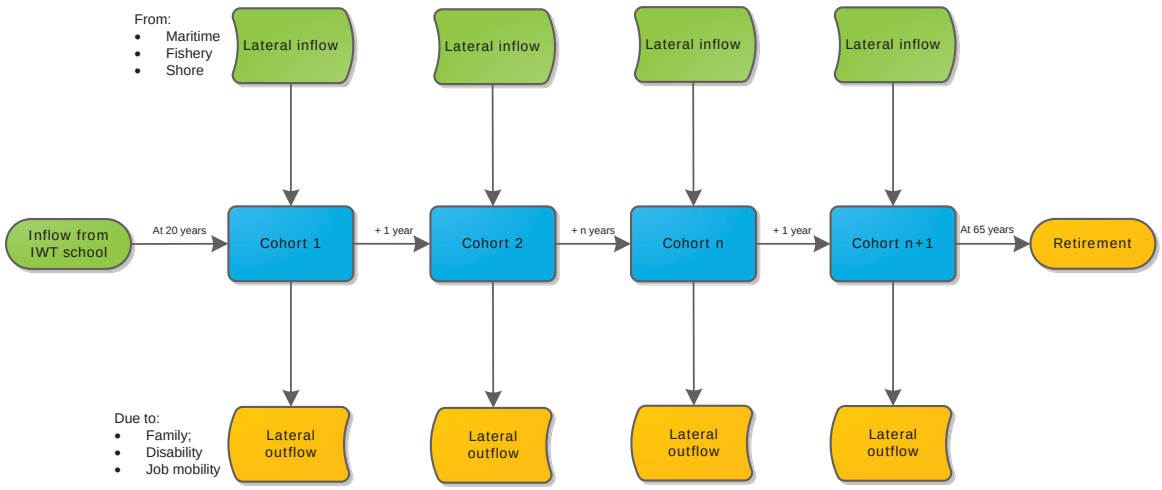
Supply of workers for different corridors

The supply side of IWT workers is modelled according to the scheme that is shown in Figure 2. The core of the model consists of a subdivision of the workforce in different age cohorts. Over a certain time span, the various age cohorts either increase or decrease, because of:

- Inflow from younger workers from a lower age cohort
- Outflow of workers to a higher age cohort
- Lateral inflow of workers in an age cohort from other sectors (fishery, maritime, shore side, others)
- Lateral outflow of workers in an age cohort (family circumstances, disability, job mobility)

As special cases, the lowest age cohort also has inflow from IWT training institutes (demonstrating the attractiveness of the IWT sector), while the highest age cohort has an outflow due to retirement.

Figure 2 Schematic overview of evolution of age structure of IWT workforce



The following assumptions are made in order to estimate the supply of workers:

- All persons that enrol in a IWT-training institute will have an IWT job, either by graduating (85%) or by a pathway via gaining experience in practice (15%);

Table 2 Statistics on the amount of students enrolled and graduating

Institute	Time[17]	Year	Students enrolled	Students graduating	Percentage graduating[18]
STC (NL)	2	2006	185	184	99,5%
		2007	177	172	97,2%

[16] ibidem
[17] Duration of Education Program (2 years for boatsmen, 3 years for helmsman and 4 years for captain)
[18] This number can be above 100%, when students double a year.

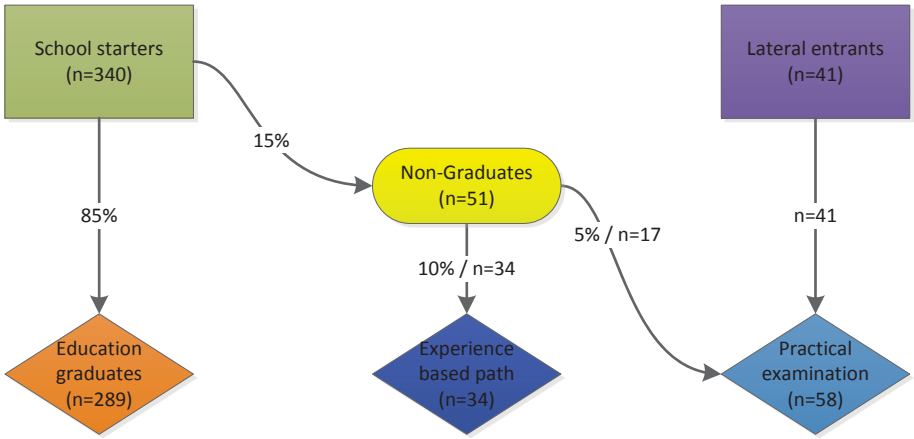
Institute	Time[17]	Year	Students enrolled	Students graduating	Percentage graduating[18]
		2008	169	172	101,8%
		2009	180	178	98,9%
	4	2006	135	121	89,6%
		2007	124	126	101,6%
Harlingen (NL)	2	2005	57	48	84,2%
		2006	70	55	78,6%
		2007	52	35	67,3%
		2008	61	61	100,0%
		2009	40	43	107,5%
Duisburg Schullschiff (DE)	3	2005	108	101	93,5%
		2006	94	87	92,6%
		2007	98	91	92,9%
		2008	119	99	83,2%
Duisburg SBK (DE)	3	2005	116	83	71,6%
		2006	106	91	85,8%
		2007	123	99	80,5%
		2008	144	134	93,1%
Total	**N/a**	**N/a**	**2158**	**1980**	**91,8%**

Source: Data collected by STC (2013)

- If applicable, out of the 15%, 2/3rd take the experience based path to obtain their qualifications and 1/3rd will take a practical examination.
- All people entering the IWT workforce via education, enter at the age of 20.
- Outflow (apart from retiring at the age of 65) and lateral inflow from other sectors balance each other for all age categories, as currently no data is available concerning lateral entrants or people leaving the sector before retiring[19].
  Onderwijs Centrum Binnenvaart (2014) has reported 58 practical exams in 2013. We have assumed that 17 (=1/3rd of 15% of 340) of them are early school leavers that obtain their professional qualifications by practical examination. The latter (41 workers) is considered lateral inflow. Nederland Maritiem Land (2012) also reported an outflow of 130 workers in 2012, of which 32% is considered as lateral outflow. This equals 41 workers.
  Thus, see figure 3 for an overview of entrants to the IWT sector

Figure 3 Schematic overview of entrants and paths to qualifications

[19] Apart from the fact that in the base case, lateral entrants are not taken into account due to the absence of reliable data, it must be noted that lateral inflow/outflow may help to level a labour market imbalance between demand and supply.



- Attractiveness of IWT-education remains constant over the years, meaning that a constant proportion of 20-year olds choose to enrol in an IWT training institute per year.
- The age of retirement for all workers has been set at 65 years.
- The distribution of IWT workers over the corridors remains proportionate.

In this study, the supply of workers is therefore determined by the current amount of workers plus the amount of new students entering in training institutes, minus the amount of retirements per year.

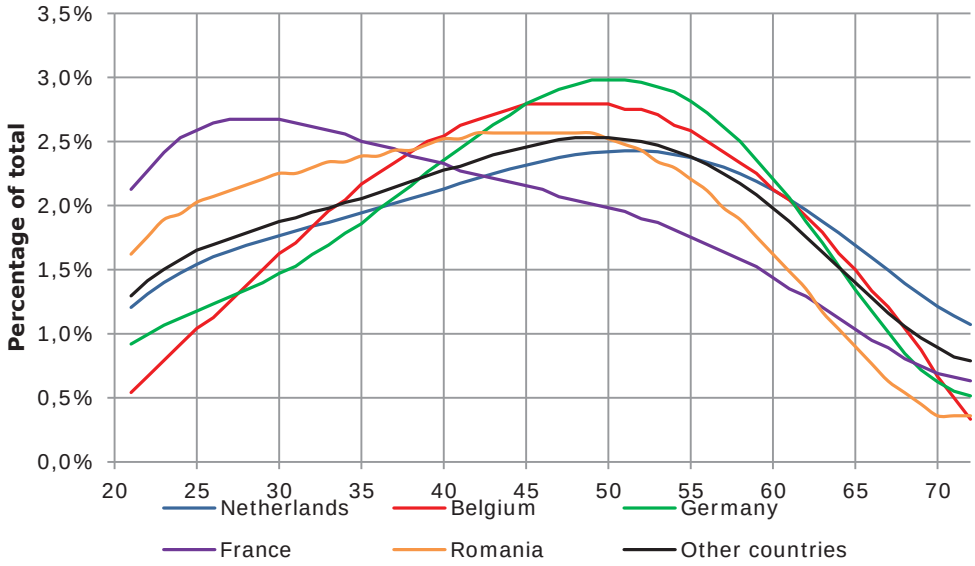
Current age distribution

The age distributions for the five countries with the largest workforce in IWT can be seen in Figure 4. These age distributions are continuous, while the one from Figure 2.4 of the external study[20] have been divided into cohorts that span 10 years. In addition, an estimation was made for the age distributions for Romania and other countries[21], due to lack of data for these Member States. An average of the total EU IWT workforce population was used to estimate the age distributions in these countries. For Romania, data was only available for boatmasters and not for operational workers.

Figure 4 Age distributions for the five countries with most workers in IWT for 2013

[20] ibidem

[21] Other countries include Poland, Switzerland, Austria, Slovakia, the Czech Republic, Hungary and Bulgaria, as well as all the other countries listed in table 2.1 and not specifically mentioned in this footnote and in figure 6.3. This involves countries with isolated IWT networks, such as Italy, the United Kingdom, etc.



Source: Panteia (2013) based on data from ITB and Ecorys (2013)

Future developments of IWT labour market

Attractiveness of IWT sector (representing the students outflow from training institutes)

For the evolution of the IWT workforce in time it is important to predict the outflow from training institutes. Partly, this depends on the amount of youth available. In the base case, it is assumed that a constant proportion of youth will choose to enrol (and graduate) in IWT training. The proportion of students enrolled in IWT training institutes compared to the total amount of students is defined as the attractiveness of IWT training. In this study, we have assumed the amount of 20-year-olds per country as a proxy to the total amount of students per country. The attractiveness of IWT education is further assumed to remain constant over time and it is estimated, based on the current proportion between new entrants to IWT education and current 20-year-olds.

The Europop2010[22] population projections on country level have been taken for the Netherlands, Belgium, Germany, France and Austria to determine the amount of 20-year-olds within the period of scope (2013 – 2050). For all the other countries, data from the World Bank has been used[23]. By multiplying this amount by the attractiveness of IWT education, the amount of young people entering the profession can be determined for each year.

[22] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_projections

[23] The national statistical institutes of the mentioned countries have shown disaggregated data for the Europop2010 population projections. Eurostat, the data source for the other countries, showed the population projections in age groups of five years. World Bank data, however, provided disaggregated data for these countries.

Attractiveness of IWT education in 2013

STC[24] determined the amount of students entering in IWT training institutes. The survey comprised 12 countries and 26 training institutes. The attractiveness of IWT education is calculated as follows:

1 The amount of 20-year-olds for each country, is taken from Europop2010 or World Bank population projections;
2 The amount of new entrants per year as reported by STC is taken and divided by the amount of 20-year-olds from the population projections.

As not all of these institutes provided data for the amount of graduates per year, the amount of new entrants per year has been taken as a proxy for the amount of people eventually entering the IWT sector, either by a path through the education institutes or by gaining experience. See section 2.9 of the external study[25] for further evidence of this.
The attraction of IWT education in 2013 per 10,000 adolescents of 20 years old can be observed in Table 3. In total, it is estimated that the sector attracts 923 new entrants in 2013.

Table 3 Attractiveness of IWT education in 2013, per country

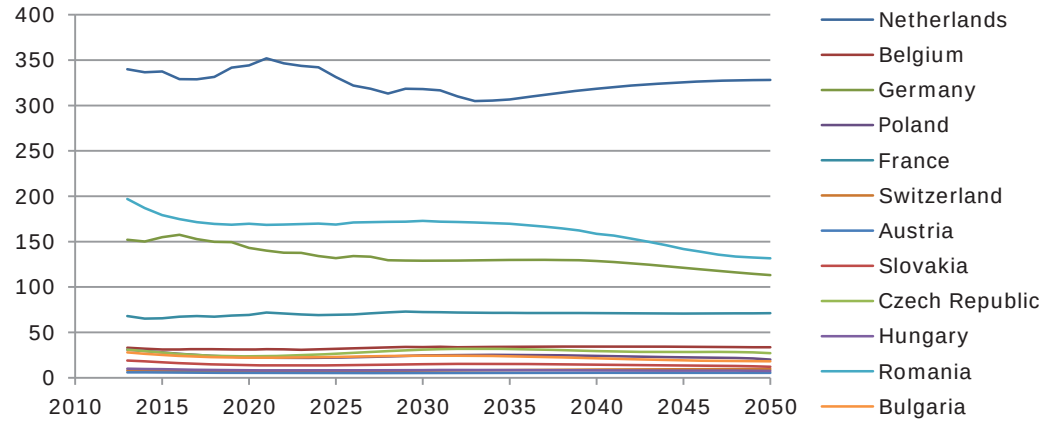
Country	Entrants in IWT	Attraction (per 10,000)	Country	Entrants in IWT	Attraction (per 10,000)
Netherlands	340	16.3	Germany	152	1.9
Romania	197	7.9	France	68	0.9
Bulgaria	28	3.7	Switzerland	8	0.8
Slovakia	19	2.6	Hungary	10	0.8
Belgium	33	2.4	Poland	31	0.6
Czech R.	31	2.4	Austria	6	0.6

Source: STC (2013), adjusted by Panteia based on Europop2010 population projections for the Netherlands, Belgium, Germany, France and Austria and Worldbank-projections for the other countries.

As we have assumed the attractiveness of IWT education institutes to remain constant over time, multiplying the amount of 20-year-olds per year by the attractiveness of IWT (divided by 10,000) will give the amount of new entrants per year. This can be seen in Figure 5.

Figure 5 New entrants to IWT sector per country (2013-2050)

[24] STC B.V. provides tailor-made training and education for the complete logistics chain, offshore, dredging, shipping, maintenance and process industry.
[25] ibidem



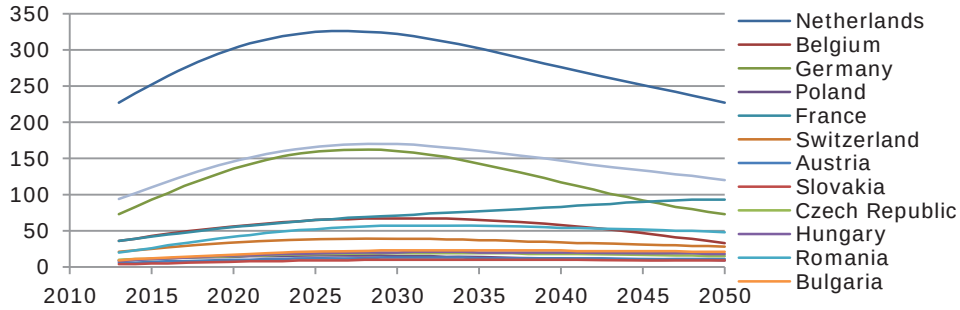
Source: STC, 2013, adjusted by Panteia based on Europop2010 population projections for the Netherlands, Belgium, Germany, France and Austria and World Bank-projections for the other countries.

Figure 5 shows that, in general, the amount of new entrants to the sector is expected to decrease over time. Starting with 923 new entrants in 2013, the number of new entrants will drop to 860 in 2020, 823 in 2040 and 778 in 2050. The main 'contributors' to this decrease over time are Romania, the Czech Republic and Germany. In the case of Romania, 197 new entrants to the sector have been observed in 2013 and this is expected to decrease to 132 new entrants in 2050. In other countries, the number of new entrants to the sector each year is expected to be rather constant.

Retirements

In this study, we have made the assumption that IWT workers will retire at the age of 65. As we know the age distribution per country, the amount of retirements per year can be determined. This can be seen in Figure 6.

Figure 6 Amount of retirements in IWT per country per year



Source: Panteia (2013)

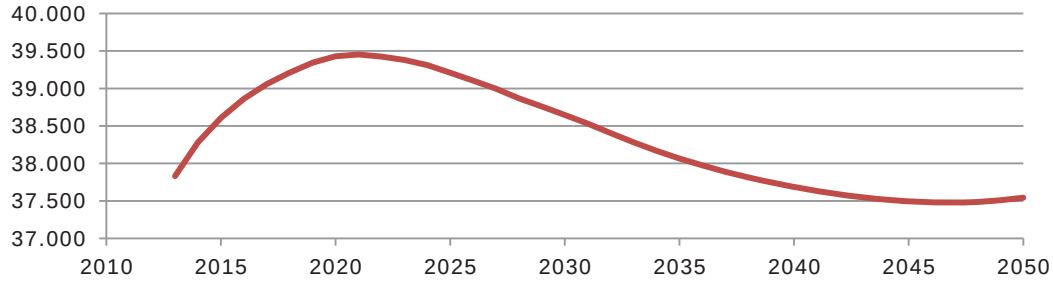
The amount of retirements per year will reach its maximum levels in the period 2025 – 2030. All current workers aged 50 or more – the majority of IWT workers as can be observed from Figure 6 – will retire during this period.

Evolution of total supply of workers

The total amount of workers can be determined by summing up the amount of workers in the previous year and the new entrants to the sector, minus the amount of retirements per year. The expected evolution of the amount of workers in the period of scope (2013

– 2050) can be observed in Figure 7. The exact figures per country are listed in Annex 5 of the external study[26].

Figure 7 Total aggregated supply of workers in IWT sector (2013-2050)

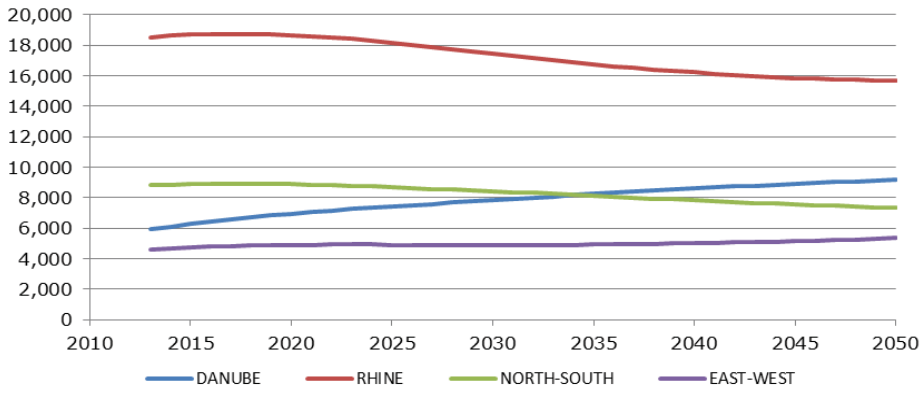


Source: Panteia (2013)

In order to distribute the workers among the corridors, a distribution has been applied. The values and further background on the calculation of this distribution can be found in Annex 7 of the external study[27]. This distribution is assumed to remain constant over time.

The distribution of workers among corridors is determined by multiplying the total amount of workers per year by the distribution rate per corridor (see Annex 5). The amount of workers per corridor is shown in Figure 8 (see Annex 5 of the external study[28] for a table with the data that was used for this figure).

Figure 8 Total supply of workers in IWT sector per corridor (2013-2050)



Source: Panteia (2013)

It can be concluded from Figure 8 that the supply of workers in the Rhine corridor and North-South corridor is expected to decrease over the period 2013-2050, whilst the amount of workers in the Danube corridor and East-West corridor is expected to increase.

Evolution of the gap between demand and supply of workers in IWT per corridor

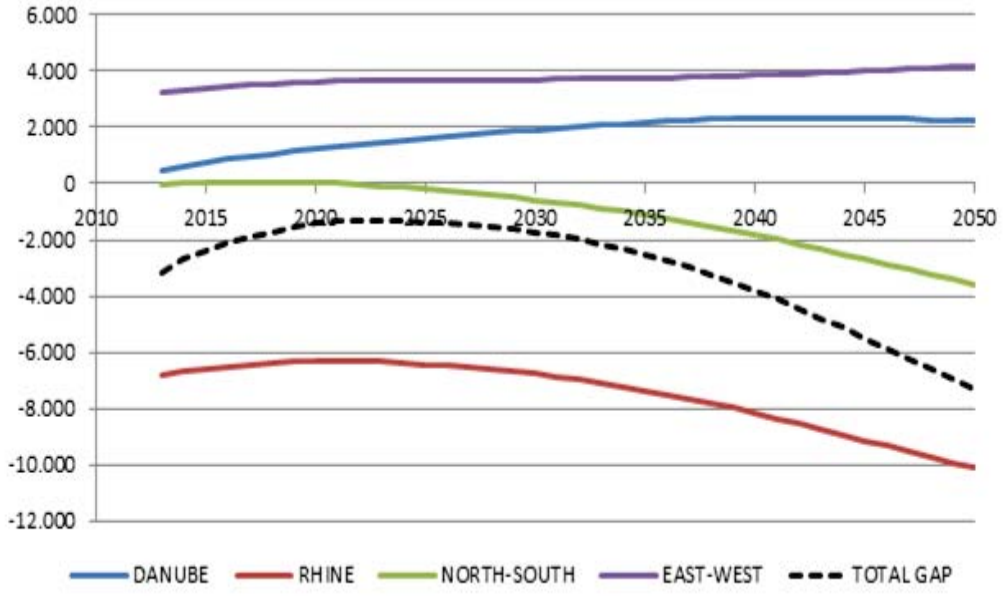
The gap between the demand for workers and the supply of workers can be determined by subtracting the graphs in Figure 1 and Figure 8. The difference between demand and supply

[26] ibidem
[27] ibidem
[28] ibidem

for each of the corridors shows the regional differences. Also the total EU gap between demand and supply has been included (see Figure 9).

As shown in Figure 8, regional differences between corridors are expected to increase in the long term. On the Danube corridor and the East-West corridor, there will be a surplus of about 2,500 and 4,000 workers respectively. On the other hand, on the North-South and Rhine corridor there will be a shortage of labour.

Figure 3 Gap between demand and supply of workers in IWT per corridor (2013-2050)



Source: Panteia (2014)

It must be noted that deficits exist at this moment for the Rhine corridor, while there is a surplus of workers on the Danube, the North-South and East-West corridor. This gap is the reason for which so many workers from Eastern-Europe are working on vessels sailing under the flag of the Netherlands and Germany, as can be seen in Table 4.

Table 4 Amount of workers per country of origin in the Netherlands in 2011

Nationality	Numbers counted in survey of Dutch Inspectorate	Total workers in IWT in the Netherlands[29]	% of total workers in IWT in the Netherlands
Dutch	414	6,473	60%
Czech	69	1,079	10%
German	64	1,001	9%
Polish	38	594	5%
Belgian	32	500	5%
Romanian	25	391	4%
Philippine	16	250	2%
French	14	219	2%
Slovenian	4	63	1%
Hungarian	3	47	0%
Bulgarian	2	31	0%
Spanish	2	31	0%

[29] Percentage multiplied by amount of workers in IWT in the Netherlands, see Table 2.1.

Serbian	2	31	0%
Russian	2	31	0%
Ukrainian	2	31	0%
British	1	16	0%
Yugoslavian[30]	1	16	0%
Cape Verdian	1	16	0%
Total	**692**	**10,820**	**100%**

Source: Dutch Human Environment and Transport Inspectorate, inspection language problems (2011)

Figure 9 shows that labour mobility is very important for the functioning of the IWT labour market. Restrictions on accessibility on the Rhine occur even now with a shortage of over 8,000 workers on the Rhine corridor. These figures are expected to increase over time, up to a shortage of nearly 12,000 workers in 2050.

Although agreements exist between a certain number of countries, ensuring mutual recognizing of Service Record Books and boatmaster licences, these agreements are not yet perfect and further legislation on these subjects can help the IWT sector.

Sensitivity analysis

In order to test the sensitivity of the model to the parameters used, five scenarios have been tested. The assumptions apply for the whole period of scope. The scenarios include:

A) 10% dropout at the age of 35, due to paternity and movement to 'shore';
B) 10% dropout at the age of 45, due to disabilities;
C) 10% influx at the age of 35 from other sectors, such as maritime or fishery;
D) 10% extra attractiveness of IWT education;
E) 10% less attractiveness of IWT education;

For each of these scenarios, the impact has been determined:

- Inflow of employees (Figure 10);
- Outflow of employees (Figure 11);
- Difference between inflow and outflow (Figure 110[11]);
- Gap between demand of workers and supply (Figure 1341[12]);

In the Figures mentioned above, also the Base Case has been included (as "0"). The impacts of the five scenarios on the inflow, outflow and thus the balance can be observed from Table 5.

Table 5 Impact of scenarios on parameters compared to the baseline for the whole period

	Inflow	Outflow	Difference
A	0	+	-
B	0	+	-
C	+	+[31]	+
D	+	0	+

[30] The exact nationality could not be retrieved in the database.
[31] The extra inflow at the age of 35 will retire within the period of scope, starting in 2043, thus causing extra outflow in this scenario as well.

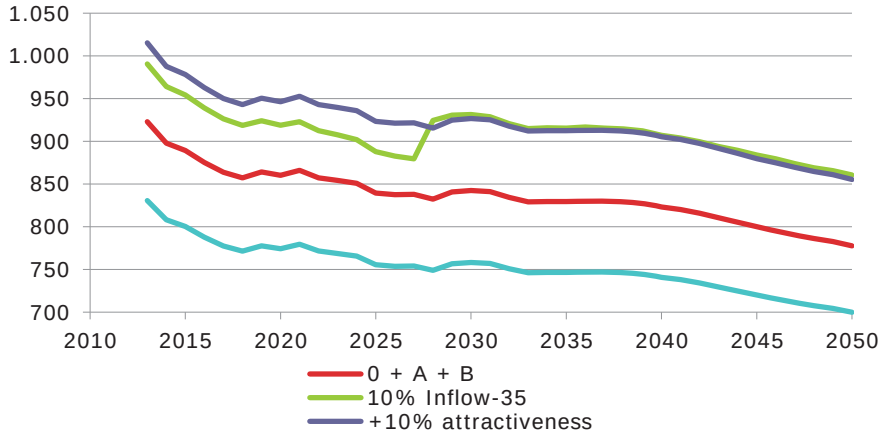
E	-	0	-
0 means no difference compared to the baseline scenario; + means an increase compared to the baseline scenario; - means a decrease compared to the baseline scenario.			

Source: Panteia (2013)

Inflow

Figure 10 shows the amount of new entrants to the sector for all the scenarios. It can be observed that the 10% influx at the age of 35 from other maritime sectors (scenario C) gives the total inflow a boost, when compared to the baseline scenario. The sharp increase (2028) is the result of the enlarged inflow in 2013 compared to the years before and the multiplier of 10% on 35-year-olds. The age distribution of 2013, only involves 513 21-year-olds. Compared with the projected increase of 923 new entrants at the age of 20[32], there will be a sharp increase of the amount of 35-year-olds in 2028 compared to 2027. The amount of new entrants to the sector does not change for scenarios A and B compared to the baseline scenario The new entrants in scenarios D and E are either 10% higher and 10% lower than the baseline scenario.

Figure 10 Total inflow of workers per scenario (2013-2050)



Source: Panteia (2013)

Outflow

Figure 11 shows the amount of outflow of workers in the IWT sector for all the scenarios. It can be observed that the outflows follow a pattern that resembles a parabola, mainly due to current age characteristics of the IWT sector. However, minor differences between the curves can be seen. Firstly, scenarios O, D and E (green line) and scenario C follow the same line, until 2043. At that time, the new entrants due to lateral inflow (which again was a result of the enlarged inflow in 2013, compared to the years before[33] and the multiplying effect) from other maritime sectors retire, thus causing extra retirements compared to the baseline scenario.

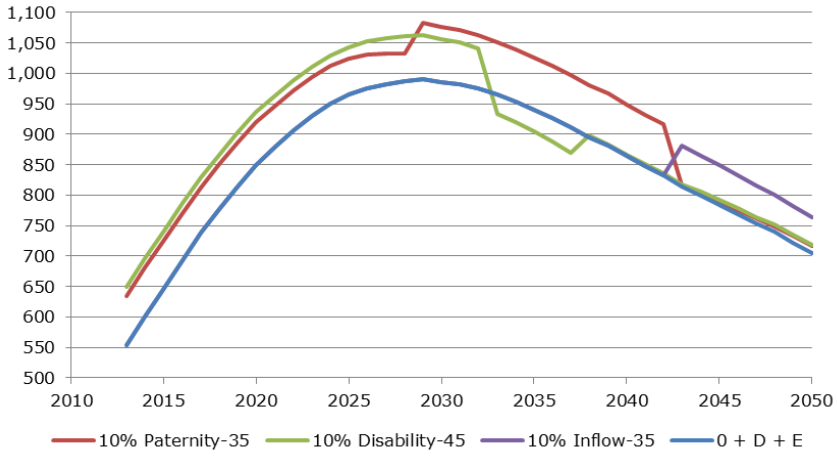
The same goes for scenario A in 2028. Here, at the age of 35, 10% of the employees are supposed to leave the sector due to paternity. Since the inflow in 2013 was enlarged compared to the years before, this causes a sharp rise. However, the amount of

[32] See Annex 5, table A 4

[33] In 2013, there are 923 new entrants to the sector. In 2012, only 503 new entrants have been reported.

retirements drops to normal levels in 2043, which is the result of the fewer amount of 65-year olds at that time. It must be noted that 10% of these workers already left the sector in 2013 at the age of 35.
Scenario B seems much alike scenario A at first sight. However, big differences can be observed from the graph. This is the result of people first leaving the sector, before the big wave of new entrants (in 2013) will cause an increase in the outflow. It takes 20 years before the graph 'benefits' from the fewer amount of 65-year olds, and it takes 25 years before the new entrants in 2013 reach the age of 45.

Figure 11 Total outflow of workers in scenarios

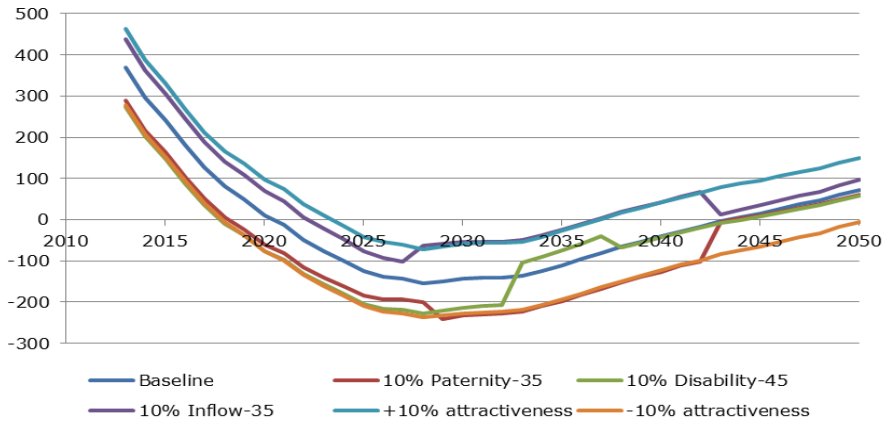


Source: Panteia (2013)

Differences between inflow and outflow

From Figure 112[11] it can be observed that all graphs follow the same pattern. All scenarios start with a surplus of entrants compared to the workers leaving the sector. Compared to the baseline scenario, scenario D (10% more attractiveness of IWT education) seems to show the best results in terms of net inflow, as inflow overcomes outflow for most of the years. On the other hand, a less attractive IWT sector (scenario E) would mean a deficit for nearly all the years. No scenario manages to create positive numbers all the time, mainly due to the large amount of 40-55-year-olds that will retire between 2020 and 2040.

Figure 12 Net result of inflow minus outflow for all scenarios



Source: Panteia (2013)

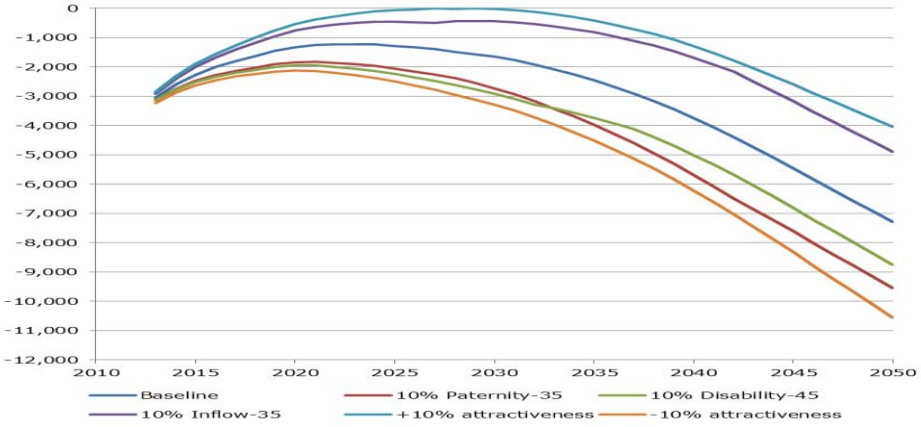
Gap between demand and supply of workers

Figure 1343[12] shows us the gap between the demand of workers (which remains the same for all scenarios) and the supply of workers, which of course varies depending on the situation. It can be observed that the baseline scenario results in a smaller deficit of workers on the short term, whilst a much bigger gap would emerge in the long run.

None of the scenarios is able to keep up with the increased demand of workers in the long term. This holds even for the most positive scenarios: scenarios that increase the attractiveness of the IWT sector and scenarios that increase lateral inflow from other maritime sectors are not able to keep up with the increasing demand. This emphasises even more the need for measures to lower the entry barriers to the IWT labour market. The more negative scenarios show that there is a possibility that the situation may end up even worse, with shortages of labour of up to 10,000 workers in 2050, meaning a vacancy rate of more than 20%.

In the medium term, unemployment can be seen in IWT for scenario D (10% more attractive IWT sector). This happens when the 40-55-year-olds at this time reach their retirement. Unemployment rates will be low however; this scenario never exceeds a surplus of more than 500 workers.

Figure 134 Gap between demand and supply of workers for scenarios



Source: Panteia (2013)

Annex 4:
Comparison between Rhine Patent regulation and Directive 96/50/EC on requirements for issuing boatmasters' certificates

This annex is based on the external study in support of the impact assessment[34].

General Requirements	The Rhine Patent Regulation	Directive 96/50/EC
1. Minimum Age	21 years	21 (*18*) years Exception: MS may still issue certificates to persons 18 years old or older.
2. Physical and mental fitness	Physical and mental fitness, certified by a document issued by a doctor recognised by the competent authorities.	Examination carried out by a doctor recognised by the competent authority.
Additional medical examination	Every five years between 50– 65 years; every year after 65 years	Every year starting from the age of 65 years
3.Professional experience	4 years, including, at least, 2 years as rating, engine-minder or, at least, 1 year as leading crewman. The experience must be acquired on a self-propelled vessel for which a Rhine patent is required. A year is defined as 180 days of inland navigation.	Min. 4 years of professional experience as a member of the deck crew on an inland waterway vessel. No definition is given on how many working days should be included in a year.
The proof of professional experience	Service record book delivered by the Rhine authorities or a valid administrative document as described in article 2.09.	Validated by the competent authority of the MS - personal service record.
Reduction of the required professional experience	By a max. 3 years for the time spent in a training programme;	By a max of 3 years - if the applicant has a diploma recognised by the competent authority which confirms specialised training in inland navigation comprising practical navigation work; - if the applicant has passed a practical examination in sailing a vessel; the certificate shall in that case cover only vessels with nautical characteristics similar to those of the vessel which underwent the practical examination.
4.Examination of professional knowledge	The candidates must demonstrate their professional knowledge and skills by passing a theoretical examination	The applicant must have passed an examination of professional knowledge

Source: Rhine Patent regulation and Directive 96/50/EC

The table indicates specific differences in requirements for issuing boatmasters' certificates, including:

- For the minimum age to obtain a boatmasters' certificate the Rhine Patent Regulation and Directive 96/50/EC both include 21 years, however, Directive 96/50 adds the exception in

[34] Panteia (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment: Recognition of professional qualification and training standards in inland navigation, p. 35-36.

which Member States can issue a boatmasters' certificate at age 18. This exception is used, e.g. by the Netherlands and France.

- Regarding proof of physical and mental fitness, systems are basically similar, except for the additional medical examination. In the Rhine regulation this needs to be done every five year between age 55-65, and each year afterwards. Directive 96/50 just states each year starting from the age of 65 years.

- The years of professional experience is treated differently between the two regimes. Not in terms of duration, this is 4 years for both, but in terms of how this time is to be spent. Directive 96/50/EC does not provide any specifications on how time is to be spent on board and does not define how many working days should be considered as one year. The Rhine Patent regulation prescribes at least two years as rating, engine-minder or at least one year as leading crewman. A year is defined as 180 days of inland navigation.

- Also with regard to the reduction of the required professional experience, differences prevail. Although under both systems reductions up to a maximum of 3 years exist, for the Rhine Patent regulation one year is calculated on the basis of 180 effective working days, whereas for the Directive no definition is given on how many working days should be included in a year. Moreover, the Directive allows for a reduction of the required professional experience if the applicant has passed a practical examination. This is not the case for the Rhine patent regulation, which only allows for a reduction on the basis of time spent in a training programme.

- Regarding the examination, article 7.12 of RNP states explicitly that for obtaining the Rhine patent or small patent the exam shall be theoretical, whereas the Directive 96/50/EC does not specify the form of exam.

Annex 5:

Comparison table for the mutually recognition of boatmaster license per couny and country where the license is issued

Comparison table for the mutually recognition of boatmaster license per country / river commission and country / river commission where the license is issued[35]

Recognizes →	*AT*	*BE*	*BG*	*CZ*	*HR*	*FR*	*DE*	*HU*	*LU*	*NL*	*PL*	*CCNR*	*RO*	*RS*	*SK*	*CH*	*UA*	*UK*	*IT*	*SE*	*PT*	*FL*	*LT*	*EE*
Austria	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Belgium	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Bulgaria	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Croatia	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Czech Republic	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
France	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Germany	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Hungary	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Luxemburg	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Netherlands	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Poland	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
C.C.N.R	x	x	x	x			x	x		x	x	x	x		x									
Romania	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Serbia	x		x		x			x					x	x	x		x							
Slovakia	x	x	x	x	x	x	x	x		x	x	x	x	x	x		x			x		x	x	x
Switzerland												x				x								
Ukraine	x		x		x	x							x	x	x		x							
United Kingdom	x	x	x	x	x	x	x	x		x	x	x	x		x			x		x		x	x	x
Italy	x	x	x	x	x	x	x	x		x	x	x	x		x				x	x		x	x	x
Sweden	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Portugal	x	x	x	x	x	x	x	x		x	x	x	x		x					x	x	x	x	x
Finland	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Lithuania	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x
Estonia	x	x	x	x	x	x	x	x		x	x	x	x		x					x		x	x	x

** Spain, Latvia, Denmark, Cyprus, Malta, Irelenad and Slovenia are not included in this analysis, as these countries are generally not considered as IWT-countries.*

** The United Kingdom, Italy and Portugal do not issue boatmaster certificates in line with Directives 96/50/EC and 91/672/EEC.*

** Luxemburg does not issue boatmaster certificates at all.*

Source: Panteia (2014)

[35] Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report, page 51.

Annex 6:
Comparison of functions on board the vessel

This annex is an extract from the external study in support of the impact assessment[36].

CCNR	UNECE	Danube Commission	Sava River Commission
Decksmann	Deck-hand	Decksmann	
Leichtmatrosen	Apprentice	Leichtmatrose	
Matrosen	Ordinary crewmen	Matrose	Ordinary crewman
Matrosen-Motorwart	Engine-minder	Matrosen-Motorwart	Engine-minder
Bootsmann	Able crewmen	Bootsmann	Boatswain
Steuermann	Helmsmen	Steuermann	Helmsman
			Chief Mate
Schiffsführer	Boatmasters	Schiffsführer	Boatmaster
Maschinist	Engineer	Maschinist	Engineer
	Electrician-engineers	Elektromechaniker	
	Radio operator	Funker	

Source: EDINNA

The Rhine region works with the Rhine regulations whereas the Danube countries work according to UNECE regulations or recommendations by the Danube Commission. The manning regulation of the Sava River Commission does not recognise the two starting functions. Member States have national manning regulations, based on the existing manning regulations of the River Commissions. As said, countries from the Rhine region have based their manning regulations on the Rhine regulation and this applies to the waterway network as defined in the Mannheim Convention. For the waterways not covered by the Mannheim Convention, different manning regulations can be applied at national level. A similar principle applies to the Danube countries, i.e. UNECE regulations or recommendations by the Danube Commission apply, however, countries can apply their own regulations for their national waterways.

Linked to the functions presented here above, professional qualifications are described in the relevant regulations of the governing bodies. Below is presented an overview of function descriptions and professional qualifications from the relevant regulations. It indicates that professional qualifications are to some extent harmonised, however, differences remain.

General overview

Currently in Europe, function names and descriptions seem not to differ a lot between relevant authorities, either being countries or river commissions. However, based on the analysis[37] of

[36] Panteia (2014), Recognition and modernisation of professional qualifications in Inland Navigation, Technical support for an impact assessment, Final report 2014, page 52-55.

the function descriptions and requirements of three river basins, six Member States and the UNECE, it can be concluded that there are many minor differences between the function descriptions and the required professional qualification. These differences have effects on the mobility of some workers.

Deckhands

The minimum age for deckhands is 16 years in every country, except of Austria. In this country, deckhands need to be at least 18 years old. The Sava Commission function descriptions do not include deckhands. Poland does not include deckhands either. See the Polish definition of an apprentice.

Apprentices

The Sava Commission does not include functions for deckhands and apprentices. This makes recruitment of personnel difficult, as newcomers to the sector will not be able to contribute to the daily operation of a vessel[38]. Other authorities agree on the function of apprentice: that should be a person of at least 16 years of age, with an education contract of a certified IWT education school. The only exception is Poland: a Polish operational worker will be regarded apprentice if he has undergone basic training in health and safety on board, issued by the boatmaster.

Boatman

Overall, two paths to the function of boatmaster can be identified from the function descriptions and requirements.

1. Boatman need to have completed an IWT training course and their minimum age is 17;
2. If they did not complete IWT training, their minimum age is set at 19 years and (in general) they need to prove three years of professional experience, of which at least one year in inland navigation and either two years in inland navigation or maritime. However, there are exceptions:
    a. Germany is least strict when it comes to the recognition of professional experience of lateral entrants. Normally, three years of professional experience, of which at least six months of professional experience in inland navigation is required. For workers aged 20 years or above, their gained professional experience is doubled. However, the doubling does not apply for the experience gained in inland navigation. Still, this is much less stringent than the other countries and river basins.
    b. In particular, the Dutch authorities are the strictest for applying for the function of Boatman. All other authorities (MS, River Commissions) ask three years (and a minimum age of 19) of professional experience[39] (with a minimum of one year in inland navigation and two years in either maritime or inland navigation) if no examination or completion of a training can be provided. The Dutch require

[37] See also Annex 3, Panteia et al. (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation

[38] Operators that want to train deckhands and/or apprentices, will not benefit from the deckhand and/or apprentice in such a way that no other crew member can be replaced by them. Thus their daily operation will be less efficient: more costs should be spend on personnel with nothing in return. In other river basins, adding a crew member leads to longer daily operating times.

[39] Austria only requires one year of professional experience. However, as deckhands need to be at least 18 years of age (instead of 16 years elsewhere), this brings no different at this point. The worker is only less experienced.

additional examination for boatmen. However, practical examination provides a loophole for this. This way, workers only need 60 days of experience in inland navigation as a deckhand.

c. In Poland, one will qualify for the function of Boatman after nine months[40] of experience in inland navigation and having passed a practical exam.

Engine-minders

For Engine-minders, function descriptions and requirements are harmonised within Europe. The national regulations of the Czech Republic do not include a function for engine-minders.

Able Boatman

In general, one can become Able Boatman if one has successfully completed training, the final examination of a boatmaster school or have passed any other examination for Able Crewman recognised by the competent authority and if at least one year of professional experience as Boatman can be proved. If the education lasted at least three years, no additional professional experience is required. If one did not complete an IWT education course, the requirements for the function of Able Boatman are at least two years of professional experience as Boatman. The CCNR offers a loophole: one can attend for a practical examination in accordance with the Rhine Licensing Regulations and once passed, the function of Able Boatman can be acquired with only year of professional experience at Boastman.

Some derogations from the standard can however be noticed:

- The function of Able Boatman does not exist in the national regulations of Germany.
- Austria does not make a distinction between the path based on education (two years) and the path based on only professional experience. After two years as Boatman, one can apply for the function of Able Boatman.
- In Poland, one can be an Able Boatman after six months of professional experience as Boatman.

Engineer

The function descriptions and requirements for Engineers are the same throughout Europe, with a small deviation from the standard in Austria and the Czech Republic. In general, engineers need to be at least 18 years of age and need to have passed an examination or a completion of a full training course in the engine and mechanics sector, or they need to be at least 19 years of age and prove at least two years of experience as an engine-minder on a self-propelled vessel.

Some derogations to this:

- Austria and the Czech Republic do not include a minimum age for engineers that gained their function based on two years of experience as an engine-minder;
- In Poland, at least 20 months of professional experience in inland navigation plus a minimum 16 months of professional experience at shipyards will result in the function of engineer too, but only if the mandatory exam is passed.

[40] A month is defined as a maximum of 15 days in a period of 30 days.

Helmsman

The general requirements for the function of helmsman in Europa are at least:

1. One year of professional experience in inland navigation as Able Boatman, or;
2. Three years of experience as Boatman.

However, small deviations can be notified throughout Europe;

- On sections where KSS is required, not having KSS but having a license results in the function of helmsman (instead of boatmaster);
- The Danube Commission and the Sava Commission award the function of Helmsman after a vocational training of at least three years is completed, and if practical examination approved by the competent authority is passed. This in in line with the UNECE resolution that is applied in countries such as Ukraine and Russia.
- Germany requires two years of professional experience as Boatman or engine-minder. This seems a deviation of the standard, but it is however a result of not applying the function of Able Boatman in their national regulations. For workers that have not completed a vocational training, this approach reduces the path to the function of helmsman by one year.
- The Netherlands and Belgium do not award the function of helmsman after vocational training of at least three years of completed. However, after having passed examination, the function of helmsman will be awarded.
- In the Czech Republic, a minimum of at least two years of professional experience as Able Boatman is required.
- In Poland, one needs to prove six months of professional experience as an Able Boatman or 12 months as Boatman. For both paths, examination of the required knowledge and practical skills is obliged.

Annex 7:
Overview of KSS requirements in the eu member states

This annex is an extract from the external study in support of the impact assessment[41].

Table 2 KSS in EU Member States

Country	Stretch	Required knowledge / experience	Procedure
Austria	a) Km 2094,5 (Wallsee)– km 2060,4 (Persenbeug) (b) Km 2032.8 (Melk) –km 1979,8 (Altenwörth) (c) Km 1921 (Wien–Freudenau)–the Austrian–Slovak border	16 trips on the respective stretch (8 upstream, 8 downstream)	Experience is shown through service booklet
Bulgaria	Danube (E 80) – total of 11 stretches	At least 16 runs for each sector of Danube for which the certificate is delivered.	Several examinations, including a written test.
Croatia	All of Danube (E80) Km 1433–km 1295.5	16 trips on the respective stretch (8 upstream, 8 downstream)	Experience is shown through service booklet and take exam
	Sava (E80-12)	16 trips on the respective stretch in the last 3 years (and 3 times in each direction in the last 3 years) plus local conditions and regulations.	Experience is shown through service booklet and take exam
France	Rhine (E 10). There is a 18 km stretch of the Rhine at the border with Germany between Iffezheim and Lauterbourg		
	Seine Maritieme (E80) – Km 260.100 to Atlantic Ocean, a total of five stretches	For barges or convoys with a length smaller than or equal to 135 metres: at least 12 trips on the respective stretch in the last year prior to the exam, plus local conditions and regulations. For barges or convoys with a length greater than to 135 metres: at least 20 trips on the respective stretch in the last year prior to the exam, plus local conditions and regulations.	Experience is shown trough service booklet and take exam. If the applicant passes the exam, his license will be valid for a maximum of three years. In order to renew the license, at least 6 trips on the respective stretch should have been made in the past three years, of which at least 2 in the last year prior to renewal for barges with a length smaller than or equal to 135 metres. For barges larger than 135 metres, at least 12 trips should have been made on the respective stretch in the last three years, of which at least 4 in the last year prior to

[41] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p.187-190**.**

Country	Stretch	Required knowledge / experience	Procedure
			renewal. Besides, a proof of physical and mental fitness, not being older than three months, should be provided in order to renew the license.
	Harbour of Marseille-Fos and connecting channels to the Rhône (E10) [42]	10 trips on the respective stretch/area in the last year prior to the exam, plus local conditions and regulations.	Experience is shown through service booklet and take exam. The Local Knowledge Certificate will be valid for a year. In order to renew this license, the applicant should have made at least five trips in the year prior to renewal. Besides, a proof of physical and mental fitness, not being older than three months, should be provided in order to renew the license.
Germany	Rhine (Iffezheim - Spijksche Veer);	16 trips on the respective stretch in the last 10 years (and 3 times in each direction in the last 3 years) plus local conditions and regulations.	Experience is shown through service booklet and take exam
	- Elbe (Schöna - Hamburg Port); - Weser (Hannover-Münden - Oberweser); - Danube (Vilshofen - Straubing); - Untere Havel-Wasserstraße (Plaue - Havelberg), if water at Unterpegel Rathenow is above 130 cm; - Oder (Ratzdorf - Widochowa); - Saale (Elbe - Calbe).	16 trips on the respective stretch in the last 10 years (and 3 times in each direction in the last 3 years).	Experience is shown through service booklet
Hungary	All of Danube (E80) Km 1811–km 1433	16 trips on the respective stretch (8 upstream, 8 downstream) plus local conditions and regulations. Half of the practice should be carried out in the quality of helmsman and within 18 months prior to the examination	Experience is shown through service booklet and take exam. Use of interpretation is allowed.
Poland	There are some stretches on Vistula and Oder affected		

[42] For vessels with a length smaller than 70 metres and not transporting hazardous cargoes, no Local Knowledge Certificate is needed. For vessels transporting hazardous cargoes, this limit is 50 metres.

Country	Stretch	Required knowledge / experience	Procedure
Slovakia[43]	Austrian – border stretch Hungarian border stretch	At least 16 runs for each sector of Danube for which the certificate is delivered.	Experience is shown through service booklet and take exam
Schweiz	Basel – Augst KM 167 – KM 156	16 trips on the respective stretch in the last 10 years (and 3 times in each direction in the last 3 years).	Experience is shown through service booklet
	Augst – End of Rhine MK 156 - KM 150	8 trips on the respective stretch (4 upstream, 4 downstream in the last two years).	Experience is shown through service booklet
United Kingdom	Tidal River Thames (Putney Bridge - eastern limit of the Thames Barrier Control Zone)	6 months / 60 days of service, including work in different directions, in varying conditions and darkness Local conditions and regulations	Show experience through service booklet and take exam
	Portsmouth Harbour Isles of Scilly	6 months / 60 days of service Local conditions and regulations	Show experience through service booklet and take exam
	Padstow Harbour	6 outward, 6 inward journeys under supervision of a Harbour Authority representative Local conditions and regulations	Show experience through service booklet and take exam
	Bristol Port Caernarfon and Menai Strait Dee Conservancy Dover Harbour Fowey Harbour Gloucester Harbour Port of Liverpool Teignmouth	Local conditions and regulations	Take exam

Panteia (2014): underlying source: Combination of (i) Europe Economics (2009) Impact Assessment and Evaluation Study "Proposal for a Legal Instrument on the harmonisation of boatmasters' certificates in Inland Waterway Transport" and (ii) UNECE (2010) "Exchange of Information on local knowledge requirements in the ECE countries", Sava Commission (2011) and the authorities in Croatia and Slovakia (2014) , ARRÊTÉ N° 21/2011 DU 21 MARS 2011 (Calvados) and Arrêté du 8 août 2008.

[43] On the 56 kilometre stretch that is entirely in Slovakia, there are no KSS requirements.

Annex 8:
Affected parties and their key interests

Affected parties and their key interests

Stakeholder	Description	Key interests
Boatmasters and other crew members	Human resources - Around 42.000 people	Pay and employment conditions, health and safety in the workplace, valorisation of qualifications and professional careers, low administrative burden
Workers from outside the IWT sector	Human resources – Workers coming from the fishery or maritime sector but also workers from outside the waterborne sector willing to change their carreer.	Acknowledgement of the value of their past experience, possibility to access to a high level IWT qualification in a quick way, pay and employment conditions, health and safety in the workplace, low administrative burden
Ship owners, barge operators	Ship operators providing freight and passenger services within the EU. Around 9700 entreprises. The majority are micro-entreprises (vessels owned and operated by a family).	-Cost-efficient and reliable freight and passengers services -Safety and low administrative burden -High quality of trained staff on board the vessels
MS regulators and enforcement bodies	National, regional and local bodies regulating and enforcing IWT legislation. IWT regulatory and enforcement framework is characterised by a high degree of fragmentation.	- Facilitation of the decision-making process - Effective enforcement -Prevention of accidents (for people, economic impact and environment)
River Commissions	International organisations with administrations enabling them to address all issues concerning inland navigation on the concerned rivers. - Rhine Commission (MS: FR, DE, NL, BE and CH) – adopt binding regulations - Danube Commission (MS: AT, BU, HU, DE, MD, RU, SR, SK, UA, HR) - Sava Commission (MS: HR, SR, BA, SI)	Each river commission should ensure for the river under its authority: - free navigation for the vessels flying the flags of their MS - uniform regulations for entire navigable length - safety of navigation, for both people and the environment - qualifications and a social framework suited to the navigation workers
UNECE	United Nations Economic Commission for Europe, consisting of 56 member states, has two working parties on inland waterways	- Smooth and efficient inland water transport across the ECE region - Pan-European dimension of inland waterways
Education and training institutes	Inland waterway navigation schools and training institutes	High quality of trained staff on board the vessels.
Industry using IWT	Barge industry and agricultural groups	Cost-efficient and reliable freight and passengers services
Freight forwarders	Agents who act on behalf of third companies or persons to arrange the best means of transport, taking into account the type of goods and customers' delivery requirements	Safe, efficient and cost-effective transportation of goods on the inland waterway network

Annex 9:
Training and qualification rules in other transport modes

In the last decade, the EU has adopted legislation for other transport modes harmonising the requirements with the main objective of transport safety. Recitals of the legislative instruments always mention that such rules at EU level should also contribute to the aims of EU policies on the freedom of movement of workers/persons, freedom of establishment and freedom to provide services in the context of the common transport policy, while avoiding any distortion of competition. As far as the level of harmonisation is concerned, the aviation sector with an EU Regulation reached the most unified system. As it includes all seafarers and refers to STWC standards[44] the legislation for the maritime sector has however the largest substantial and geographical scope. Below the legislative instruments regulating training and qualification rules in other transport modes are briefly presented:

Maritime: Directive 2008/106/EC[45] sets out the rules on training and the standards of competence to be met by seafarers who are candidates for the issue or revalidation of certificates that allow them to perform the functions for which the relevant certificate of proficiency is issued**.** Recital n°6 mentions that 'a standardised level of training for all seafarers serving on board is vital for the viewpoint of maritime safety'. The directive requires that officers (at managerial and operational levels) must have completed approved education and training and have to meet the stipulated standards of competence. A number of other crew members (ratings) must also have completed onboard training and meet standards of competence for obtaining their qualification.

Aviation: Regulation 216/2008/EC[46] lays down essential requirements applicable to persons and organisations involved in the operation of aircraft, and to persons and products involved in the training and medical examination of pilots. Implementing Regulation (EU) No 1178/2011[47] related to civil aviation aircrew regulates conditions for certifying pilots and persons involved in their training and testing. Requirements for training course and examination for attestation of cabin crew members are also specified. Training shall be provided by approved training organisations performed by qualified personnel and conducted according to the training programmes and syllabus documented in the organisation's approval. Pilot training is already highly sophisticated and is continuously adapted to the development of aircraft types and navigational technologies. In pilot training it is also expected that the development will be towards evidence based training and competency based training as this is expected to better accommodate future trends in man-machine interface training taking into account human factors as technology develops further.

[44] The 1995 STCW Convention is one of several key initiatives that underpin this new philosophy at IMO. It seeks to establish a baseline standard for the training and education of seafarers throughout the world by placing an emphasis on quality control and competence-based training. It has 133 IMO signatory countries in the world. See: http://www.stcw.org

[45] Directive 2008/106/EC of the European Parliament and of the Council of 19 November 2008 on the minimum level of training of seafarers, OJ L 323, 3.12.2008, p.33.

[46] Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, OJ L 79, 13.3.2008, p.1.

[47] Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew, OJ L 311, 25.11.2011, p.1.

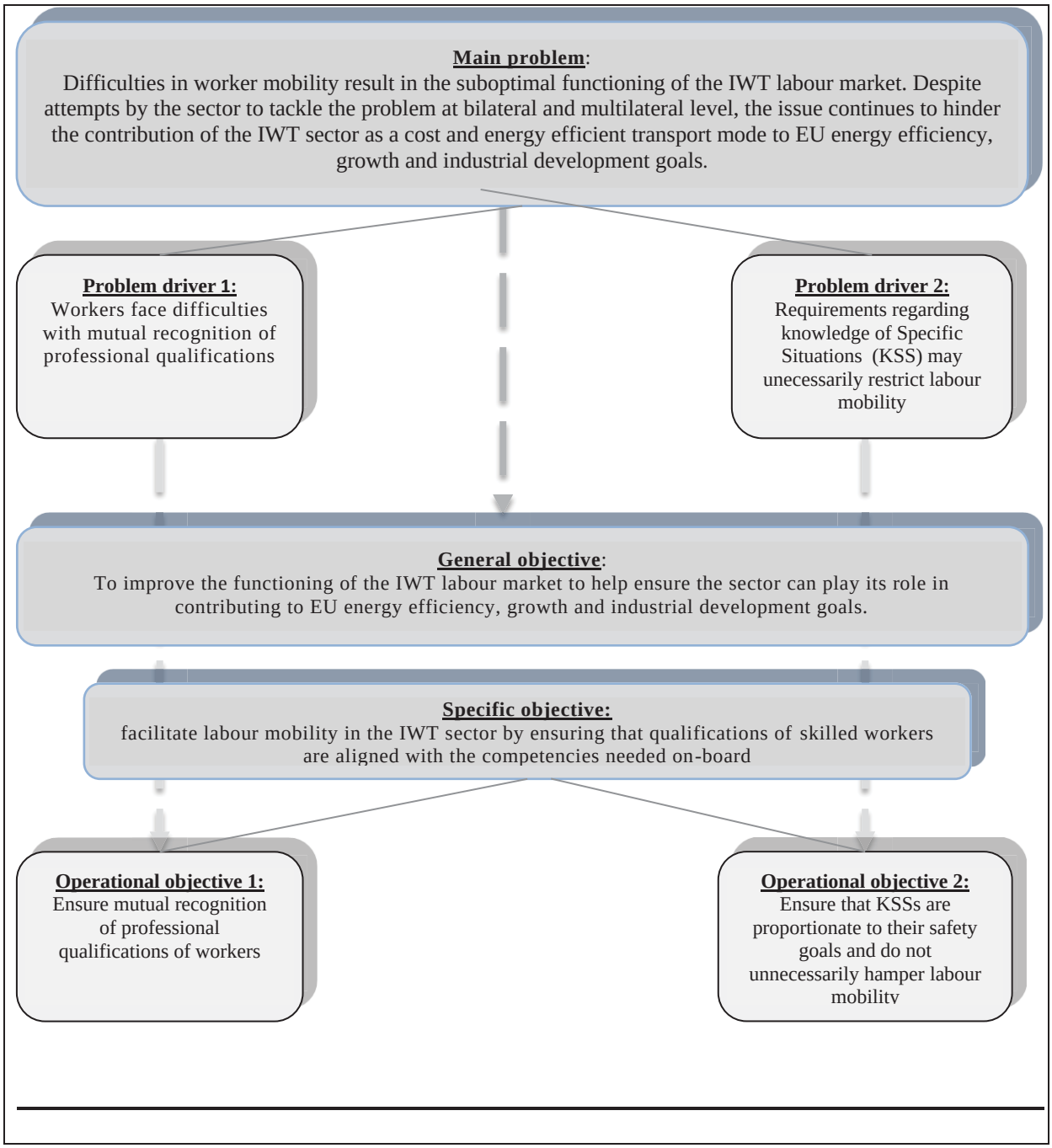
Rail: Directive 2007/59/EC[48] on the certification of train drivers operating locomotives and trains on the railway system in the Community ensures recognition of licences and harmonised complementary certificates by all railway sector stakeholders. The directive addresses both examination and training. As far as training is concerned, not only professional knowledge required for obtaining the licence is concerned but also training method, training objectives, training tasks (requirements for instructors) and process of continuous training.

Road: Directive 2003/59/EC[49] on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers sets qualification requirements for drivers of buses or lorries. According to the directive, a bus or truck driver in addition to the relevant driving licence needs to have obtained a certificate of professional competence. The Directive requires drivers to prove their initial qualification either through a combination of training and theoretical test or of practical and theoretical exam. It also requires periodic training. The Commission is working on a review of this directive. The intention is to submit a proposal that will specify higher training requirements formulated in terms of skills and competencies, in line with the European Qualifications Framework.

[48] Directive 2007/59/EC of the European Parliament and of the Council of 23 October 2007 on the certification of train drivers operating locomotives and trains on the Community's rail network, OJ L 315 of 3.12.2007.
[49] Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003 on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers, OJ L 226, 10.9.2003, p. 4–1.

Annex 10: problem – objective tree

In the figure below an overview is given of the general, specific and operational objectives, while linking them to the general problem and its underlying problem drivers.



Annex 11: discarded policy measures

Below it is explained why certain policy measures have been discarded.

A. Discarded policy measures

1. Rules for crew on recreational craft

Today no harmonized EU rules exist for licenses to navigate recreational craft. This initiative will not consider to alter this situation as it is aimed solely at professional qualifications. Extending the regulation to the operation of recreational craft does not seem proportionate, in view of the number of cross-border recreational craft on inland waterways and of the fact that no major safety issues in relation to the lack of European intervention in this field have been reported. As significant additional administrative burden would be imposed for the alignment of national certification systems, and education and examination standards, EU intervention may moreover not be cost-effective. A minority of Member States has nevertheless indicated to be in favor of regulating navigation of recreational boats at EU level. It is also questionable whether such an initiative would pass the test of the subsidiarity principle.

This segment of the market is also not left without further initiatives. At UN level the UNECE 'Resolution 40' already covers this category of craft[50]. Furthermore, the European Commission (under the lead of DG ENTR) is conducting a study on recreational craft with the objective to identify the main problems preventing more effective development of the sector and to come up with possible solutions. In this context, a detailed identification of the different training requirements for skippers of recreational craft with a length below 24 m will be carried out in all EU Member States as well as a quantification of the potential for employment in this market segment. In parallel, the Commission (under the lead DG MARE) is also considering to evaluate the subject of common boating licenses for recreational use by private individuals. The Commission will therefore take position at a further stage on the most appropriate actions to be taken for this specific sector.

2.Introduction and mutual recognition of certificates with exam for all skilled crew members beyond the categories of boatmaster and boatman (e.g. able boatmen and helmsmen)

It is not considered to introduce exams for all crew members below the category of boatmaster (including able boatmen and helmsmen) as the improvements of safety from covering also these categories are not clear. Indeed, skilled crew about the level of boatman would already have obtained the boatman qualifications, and only marginal improvement could be expected from requiring additional exams. Moreover, the Member States did not favour such a policy measure. The results of the online public consultation were also mixed on this point. As the analysis of the main problem did not reveal specific problems with intermediate crew categories, their recognition of professional qualifications through the experience as documented in the service record books is maintained.

[50] It recommends to issue an international certificate concerning the competence of operators of pleasure craft bound for the waters of foreign countries. Ten Member States, Switzerland and Croatia apply Resolution 40. Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels, Resolution No. 61, Revision 1' defines “recreational craft” as 'a vessel, other than passenger vessels, intended for sport and pleasure and of a length of 20 meters and more'.

3. The electronic service record book and logbook

As mentioned in section 3.3.1.2 of the IAR, the service record books are not fit for purpose as regards their content and format. Paper format is considered to be outdated and generates administrative burden for both the authorities in charge of verifying documentation and crew members. This issue is confirmed by respondents to the online public consultation. 70% of the total respondents asked for the introduction of an electronic service book (e-SRB) and a related central register for e-SRBs. Support was highest amongst employers' organisations and public authorities. More than 60% of the shipping companies, boatmasters and entrepreneurs/ship owners also consider it at least 'somewhat appropriate'. After addressing the subject with members of the CEG in meetings and by questionnaires which were sent to them, it became clear that the e-SRB should be introduced simultaneously with the e-logbook for efficiency reason.

Adding this measure to some policy options would have been logical because it could have provided an efficient solution for some SRB problems and had strong support from stakeholders. However, the introduction of e-SRBs and e-logbooks requires a very specific and multidimensional cost-benefit analysis because such electronic tools may be used more widely than for professional qualifications in IWT. A decision has therefore been made not to include this measure in the policy options for the moment. Preparatory works are ongoing between the Commission services and relevant actors regarding the possibility of making a proposal to introduce e-SRBs and e-logbooks in due course. In this case, if appropriate, a separate impact assessment will be carried out.

4. Harmonised/identical EU wide requirements for professional qualifications and KSS

Instead of European minimum requirements, harmonised requirements would be imposed. Measures imposing a uniform system to all Member States without any possibility for Member States to take into account the national specificities of their IWT sector. Therefore, in line with the proportionality principle, this has been discarded: similar results could be achieved with the introduction of minimum requirements only.

5. Waving the possibility of exemption for qualification of crew operating exclusively on non-interconnected waterways

The evaluation of the existing legislative framework concluded that this exemption does not affect free navigation in the European Union[51]. As a result of the use of the possibility of exemption, restrictions to labour mobility do exist (e.g. boatmasters 'licence issued in United Kingdom or Portugal are not recognised on other EU inland waterways) but are limited in number of workers affected. In order to respect the proportionality and subsidiarity principle this measure has therefore been discarded after a preliminary analysis.

[51] Panteia (2014), Evaluation of the relevant directives related to the initiative on recognition and modernisation of professional qualifications in inland navigation (Directives 91/672/EEC and 95/50/EC), p.38.

Annex 12:
Quantitative approach to safety – methodological remarks

Next to a qualitative description of the measures on safety, the IAR provides for quantitative data in order to give an indication of the magnitude of the potential impact. To this end, input from the external support studies[52] to the IAR was used.

It should be underlined that the quantitative analysis is only provided by illustration only. Uncertainties and limitations to this exercise should be acknowledged. The quantitative results do not have the intention to provide for exact cost-estimates or accidents number but to complement and illustrate the qualitative reasoning and to provide an indication for a possible order of magnitude of impacts in quantitative terms.

As a preliminary remark it is important to stress that the differentiation between the two groups of Member States (referred to in the studies and in the IAR as CCNR and non-CCNR countries) and their relative performance as regards the output of their education systems in terms of competencies of the boatmasters is not determined by the two Dutch databases used by the consultants. If this would have been the case, the methodology would have been flawed: one cannot first divide a set of Member States in two groups according to their accident levels and then make an analysis for the two groups of the accident levels on the basis of the same data and come to the conclusion that the difference in accidents is due to different levels of education. For the IAR, the differentiation between groups of Member States according to their level of has been done in a first step on the basis of different data independent from the accident databases. The two Dutch databases have then been used in a second step to test the hypothesis of the interrelationship between quality of education systems and accident frequency and to provide an indication of possible consequences of the shortcomings in quantitative terms. This two-step approach is explained below.

<u>Step 1:</u> Analysis of the situation with regard to education/training standards resulting in two categories of countries: 1) DE, FR, BE, NL and 2) the other countries.

The PLATINA I project[53] has made a comparative analysis of the training curricula in Member States based on the inventory of IWT schools and their curricula made. The project has counted the amount of relevant[54] competencies per topic from the Standards of Training and Certification in Inland Navigation (STCIN)[55] (i.e. 53 competencies) for the training institutes represented in PLATINA I for both the staff at operational level and management level, and divided the amount of competences covered by the curricula by the total number of

[52] Panteia et al. (2014), Contribution to the problem definition in the context of the preparation of the Impact Assessment regarding the recognition of professional qualifications in inland navigation, p.73-82, Panteia (2014), Technical support for an impact assessment: Recognition and modernisation of professional qualifications in inland navigation, p.37-61 and Panteia (2015), Addendum, complementary figures on safety impact in the context of the technical support for the impact assessment on the recognition of professional qualifications in inland navigation.

[53] PLATINA 1 D3.8, Strategy for harmonized IWT education and training standards, Annex II (BDB, 2010)

[54] Specific information about passenger transport has been considered irrelevant, as both our analysis on safety focus on freight transport only.

[55] EDINNA (2011), Development of the Standards of Training and Certification in Inland Navigation. http://www.unece.org/fileadmin/DAM/trans/doc/2011/sc3wp3/ECE-TRANS-SC3-WP3-inf10e.pdf

competences per category. This way, scores per training institute were presented per topic. Based on this comparison **two groups of Member States were formed**: 1) DE, FR, BE, NL (best performers[56]) and 2) other countries (extrapolated to all non-CCNR countries based on expert views):

The **strong link between training and therefore qualifications/competencies on one hand and safety on the other is beyond any doubt**. This strong interrelationship is the driving force behind the major efforts made on training and qualifications in all transport modes – aviation, maritime, rail, road. It provides also the rationale for linking higher education/training standards and more generally the introduction of competencies standards with an increase of safety performance. It is because of this generally accepted interrelationship that the difference in accident rates have been tested between groups of Member States with varying levels of quality of education (step 2), with a view to bring some elements of quantification.

Step 2: Differences in accident frequencies are calculated for each group of Member States identified in step 1), on the basis of accident statistics available intwo Dutch databases. These accident frequencies are then extrapolated to the EU level in order to obtain a quantitative indication of the number of accidents that may be caused by suboptimal education/training and by lacking competency standards.

As regards the Dutch databases…

- 2 databases from the Netherlands have been used:
  - one database from the Labour Inspectorate (work related accidents)
  - one database from Human Environment and Transport Inspectorate (navigation related accidents)
  - there are no overlaps between the two databases (only 1 out of 2290 accidents overlap)
- No other IWT specific databases are available in Europe that provide a sufficient number of registered events and the necessary information, including the accident causes and the nationality of those who were involved.
- The data in these databases is considered to be a sufficiently representative sample for European IWT. The fact that more than 35% of European IWT takes place on Dutch territory provides reasonable support for this assumption.

[56] It needs to be noted that even the best performers do not cover all competencies, so further improvements could also be made in these countries.

Annex 13:
Detailed information on investments costs for option C

Section 6.2.3 table 2 presents a summary overview of the investment cost estimates that are linked to option C. More detailed explanation can be found in this annex with relevant references for the assumptions and the underlying calculations behind the cost estimates.

Impact on investment costs resulting from the introduction of competence-based minimum requirements for boatmasters certificates tested through a practical exam (measure 2): introducing this measure under option C may require investment costs associated with the introduction of practical exams. Practical exams to obtain a boatmaster certificate already exist in AU, BE, FR, HU, NL[57], PL and RO. Other countries (BU, HR, CZ, DE and SK) would need to develop exams and programs. Based on the experience of the Netherlands, the development costs of a new intensive practical programme for boatmasters are estimated at a maximum of €100,000 per Member State. Since the format of the standard exam for boatmasters can be much simpler, and since Member States can base their new practical exams upon those already in place in other Member States, real investment costs are expected to be much lower. The development of a practical exam for boatmasters is therefore estimated at €10,000 to €100,000 per Member State where such an exam is not yet in place.
In addition, investment costs for an examination ship or a simulator may have to be considered. The recent HINT study[58] estimated that the acquisition costs for a new school ship amounts to €2.1–3.2 million. Although training ships are quite frequently used in Western Europe, there are none for the entire Danube corridor. In this study, Danube countries are considering sharing one ship in order to share investment costs. As a possible alternative or complement to a training ship, the investment costs of a simulator is taken into account, estimated at €1 million.[59] Finally, requiring candidates to bring the boat (their own or rent) for their own examination could also be an alternative which would entail no additional investment. This approach is already adopted in a number of Member States with a mandatory practical exam (e.g. FR and AT). As an average costs for all MS with no requirements for practical exams, a rough estimation of 5.5 million[60] has been used for investment costs, knowing that cheaper alternatives exist.

Impact on investment costs resulting from the introduction of a mandatory exam at boatman level (measure 8): **not significant**. If Member States decide to opt for an administrative exam only, no investment costs are incurred, since all of the topics to be tested for boatman are already tested in the boatmaster exams. On the other hand, the costs of developing a practical exam for boatmen are estimated at maximum €100,000 per country.[61] As standard exams for boatmen can have a much simpler format and as Member States can draw upon practical

[57] Not in a systematic way for the standard boatmaster certificae but for lateral entrants.
[58] Hint (2014), Danube school ship, concept.p.9. see http://www.hintproject.net/getpage.php?page=danube-school-ship.
[59] Information provided by STC on November, 7th 2014. Until now, no simulator producer is already offering ship-handling simulators for inland navigation and training purposes. For this reason, prices may vary, according to functional and technical standards offered.
[60] 55.000€ per MS * 5 + 2.6 million *2 = 5.5 million.
[61] Panteia (2014) Addendum on the estimated costs for the introduction of an administrative exam for getting the qualification of boatma based on information provided by STC on May 6th, 2014.

exams already in place in other countries, the real investment costs are expected to be much lower. Moreover, additional investment costs for the training vessel(s) or simulators are not needed as these are already incurred for the mandatory practical examination of boatmasters.

Impact on investment costs resulting from certificates for large convoys (measure 2): investment costs for this aspect of the measure, compared to BAU, are related to the fact that all current workers on large convoys will have to obtain a certificate stating that they are permitted to operate on such a vessel. The total investment costs of this measure for EU Member States are **insignificant**[62].

Impact on investment costs resulting from EU harmonised SRB and logbook (measure 10): As there would be no requirement for replacing existing paper SRBs and only new SRBs would be are issued in line with the harmonised EU model, it can be considered that there are **no** investment costs.

Impact on investment costs resulting from harmonised qualifications for operational workers and mutual recognition (measure 7): no investment costs are expected apart from human resources costs incurred by national administrations setting up new standards. These would remain **very limited** though since Member States under measure 7 do not have to integrate in their systems all the recognised qualifications defined at EU level.

Impact on investment costs resulting from the **optional** introduction of a practical examination programme for workers entering from outside the sector (measure 12): since investments costs for the development of practical exam programme(s) have already to be incurred for the mandatory practical examination at boatmaster level under the competence based system for measure 2, costs are not to be duplicated as the investments can largely serve both purposes. However, separate certification/recognition will be required as third paths for entry to the profession constitute distinct programmes. The external study has estimated the costs for certification at around €9,000 per programme.[63] On this basis, investment costs can be estimated at €108,000€ at EU level under option C, assuming that within the 11 interconnected Member States which have training institutes, the 'participation rate' would be 50%, either because a number of Member States would organize such a programme only at one level (boatmaster or boatman) or would not organize it at all.

***Variant C1 only**: Impact on investment costs due to minimum competence-based standards for examination of future boatmen and boatmasters in schools and training institutes (measure 3)*: variant C1 would entail investment costs resulting from the introduction of an accreditation/recognition system of IWT schools and training institutes programs and corresponding diplomas or certificates. The external study estimated that if all institutes were to adhere to the minimum standards, the investment cost would amount to around €420,000[64] for the **initial recognition**/accreditation. However, as this cost estimate is based on the general high standard accreditation system of higher education systems (high schools and universities) in the Netherlands and Flanders, one might consider that a less stringent

[62] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p. 33-35
[63] Idem p.142
[64] Idem.

certification/recognition system would be introduced in the IWT sector. As such, a more cost effective approach (as outlined by EDINNA[65]) would be that an inspector/auditor of the Ministry of Transport[66] executes an inspection to verify that the school's examination program meets the requirements of the standards. **In most Member States, there is already a shipping inspectorate or similar body**. To facilitate such inspections EDINNA will finalise in the coming year their "LDV TOI" program with the deliverable "Course Manual". This manual can be used by every IWT education and training institute to prove that they meet the standards requirements. EDINNA is also responsible for the project of developing a quality and assessment system which could be used for such inspections. This would simplify the process and reporting for the inspection authorities and reduce investment costs considerably.
Furthermore, investment costs will be needed for the **modification** of training and examination programs necessary for meeting the required EU competence standards. The costs related to the adaptation will strongly vary from school to school, depending on their existing levels of standards. Although generic course material are being developed by projects within EDINNA, some courses may need to be tailor-made. Adaptation costs may run into the hundreds of thousands of Euros according to STC. However, recent experience has revealed that only 80 person-hours were needed to adapt an existing curriculum of a school to new more stringent requirements[67]. Hence, the investment costs can be estimated to range between several thousands and several hundreds of thousand euros per school. Considering that the estimation of several hundreds of thousands of euros is at the high end, this would represent for the 43 identified programmes in the EU[68], an investment cost in the range of €400,000 – €4,000,000. It could however also be considered that these costs, although **significant,** are **inherent to the necessary adjustments education and training system have to make anyway if they wish to keep up with external (including technological) developments**.

B) Impact of the policy options on investment costs due to measures linked to KSS

Under option C**,** a **justification** of KSS requirements based on the criteria and principles outlined in the legislation is required. Investment to be incurred mainly concerns some **extra work for the administration**, but no specific highly technical study would be required. Option C also allows Member States to organise **KSS exams** for all KSS in Europe. This would incur translation costs for exams that will take place through multiple choice questions. These costs are difficult to estimate at this stage as they will depend on the examination requirements and on the number of Member States that will wish to organise KSS exams for stretches located in another Member State. If KSS is tested with a simulator, it is considered that no investment would be needed, based on the assumption that only Member States that possess simulators would organise such exams. If KSS is tested with by completing journeys on the waterway sectors concerned, no investments would be needed neither, as this cannot be tested by the other Member States.

[65] Information communicated by EDINNA to the Commission on 30/11/2014
[66] Or another ministry depending on the system applicable in each Member State.
[67] Data comunicated by CERONAV to the Commission on 16/12/2014.
[68] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment p. 142.

Annex 14:
Detailed information on administrative costs for option C

Section 6.2.4 table 3 presents a summary overview of the administrative cost estimates that are linked to option C. This annex provides more detailed explanations on the assumptions and the underlying calculations behind the cost estimates.

A) Impact on recurrent administrative costs linked to mutual recognition of professional qualifications

Impact on recurrent administrative costs due to minimum standards linked to the frequency of the medical check-up (measure 2): Different levels of frequency of medical check-up would obviously influence the administrative costs. Introducing the more stringent approach CCNR-standards to all Member States will result in more costs than applying a system with less frequent check-ups (e.g. the Directive 95/50/EC approach or the new frequency). The external study[69] concluded, taking 2030 as a time horizon, that the new frequency produces the highest savings (Net Present Value: around € 7,7 million), followed by the EU Directive (Net Present Value: € -2,3 million. The stricter CCNR-policy would result in more costs (Net Present Value: € 1,3 million). With a time horizon of 2050, these Net Present Value figures are respectively € -13,2 million € 3,3 million and € 2,1 million.

Impact on recurrent administrative costs due to minimum standards linked to competence based approach tested by a practical exam for boatmasters (option C with measure 2 + in case of C1: measure 3): Option C would lead to extra administrative costs as practical exams would be mandatory introduced. Variants C1 and C2 are affected in a different way. Only boatmasters obtaining their professional qualifications via the experience based path will do a practical exam in case of option C1. Average cost estimates take into account two scenarios: 1) exam has to be carried out on a dedicated school ship that needs to be chartered for a day and 2) candidate has to use his own ship. Based on estimated costs for practical exams (e.g. school ship, assessors) the external study concluded that the average Net Present Value of this measure would be for variant C1 € 0.5 million taking 2030 as the time horizon and € 0.7 million taking 2050 as a time horizon. For variant C2, the amounts are €1.9 taking 2030 as a time horizon and €2.8 with 2050 as a time horizon. Further information on the assumptions and the underlying calculations can be found in the external study and attached Addendum[70].

Impact on recurrent administrative costs due to the introduction of a boatman exam (option C with measure 8 + in case of C1: measure 9): Option C would lead to extra administrative costs as mandatory exams would be introduced. Variants C1 and C2 are affected in a different way. Only boatmen obtaining their professional qualifications via the experience based path will take an administrative exam in case of option C1, whereas 100% in case of option C2. Average cost estimates take into account various combinations for theoretical and/or practical exams. The external study concluded that for variant C1 the average NPV of this measure

[69] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p 79-81

[70] Panteia (2015), Addendum, complementary figures on administrative costs for examination in the context of technical support for an impact assessment for the recognition of professional qualifications in inland navigation.

would be € 0.8 million taking 2030 as a time horizon and € 1.3 million taking 2050 as a time horizon and, for variant C2, €3.5 million taking 2030 as a time horizon and €5.2 million taking 2050 as a time horizon. Further information on the assumptions and the underlying calculations can be found in the external study and attached Addendum[71].

In case of option C1 only, impact on recurrent administrative costs due to education and training standards measures (measure 3 and 9)

The measures linked to education standards will lead to administrative costs in variant C1 of option C due to the mandatory recognition/accreditation system. In order to maintain a certification, the IWT training and education centres will need to be checked every couple of years in order to verify whether they are still compliant with the relevant standards. Member States opting for a system based on recognition (following inspection) will incur a lower administrative burden than those opting for accreditation, where compliance with the mandatory EU minimum competence-base standards for examination needs to be verified by a third party.

The external study concluded that for all IWT institutes in the EU, the total annual costs for the certification amount to around €0.7 million based on a compliance check performed every 6 years[72]. The Net Present Value of administrative costs adds up to €8.3 million by 2030, and up to €13.2 million by 2050. Further information on the assumptions and the underlying calculations can be found in the external study.[73]

However, these figures need to be interpreted with caution. No estimations have been found for specific accreditation systems for IWT education. The external study therefore estimated the administrative costs by using costs estimates from the high-standard accreditation system of higher education in the Netherlands. The quality assurance system as put forward in option C will however be less stringent than the accreditation system of higher education in the Netherlands. Therefore, costs are expected to be much lower.

Based on discussions with Member States, DG EAC, EDINNA and schools that went through recognition process with the CCNR, it was considered that these costs could be considerably reduced in the IWT context if the Member States opt for a recognition system instead of an accreditation. Administrative costs related to recognition are considered not significant. The The external study estimates have therefore been reduced by one third, and even this is considered to be an estimation at the high end of the range. Experience of the implementation of the Directive 2007/59/EC on the certification of train drivers underpins this assumption. Under article 20 of the Directive, the choice is left to the Member States to opt for a recognition or for an accreditation system. As a result, accreditation is used in very few MS and when it is used it is limited to a certain category or for a specific purpose.

Impact on recurrent administrative costs due to harmonization of required information in SRBs and logbooks (option C with measure 10): With regard to SRBs, administrative costs would be saved with option C as non-Rhine workers may have their SRBs checked in their own country in case they acquire enough navigation time to promote to a higher Rhine

[71] Panteia (2015), Addendum, complementary figures on administrative costs for examination in the context of technical support for an impact assessment for the recognition of professional qualifications in inland navigation.
[72] Inspectie van het Onderwijs (2005), Accreditatie: de kosten in kaart
[73] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p 145-146.

function. Currently, only Rhine authorities can award functions on the Rhine. The external study concluded that the Net Present Value of these savings with regards to administrative costs adds up to € 0.1 million by 2030 and € 0.2 million by 2050. With regard to logbooks, no specific costs would be saved or added. Further information on the assumptions and the underlying calculations can be found in the external study.[74]

Impact on recurrent administrative costs due to the introduction of practical exam for workers from outside the IWT sector (optional - option C with measure 12): In option C the practical exam would be voluntary introduced by Member States. The price for a practical exam programme at boatman level is estimated per candidate at 800€ and at 6000€ at boatmaster level. These prices are those applicable in the Netherlands in 2014[75]. The prices cover the costs of procedure, portfolio check, sailing time check, training and assessors. In addition yearly operating cost for the training vessels and/or simulators should also be taken into account. These are however assumed to be already covered by measures linked to boatman and boatmasters from inside the IWT sector.

B) Impact on recurrent administrative costs of the policy options linked to knowledge of specific situation (KSS)

Option B would not bring about any additional administrative costs compared to option A. Option C on the other hand would influence the administrative costs through the possibility for Member States to organise exams and issue authorisations for all KSS in all Member States.

The administrative costs for all Member States together would not change much as it is expected that only a limited number of additional boatmasters would take KSS exams compared to the baseline. Only the country in which the exam takes place would change. Therefore, although at EU level no significant extra administrative costs are foreseen, certain Member States will see an increase of their costs due to the increased number of exam participants. This could for example be the case for Poland and the Czech Republic as several of their boatmasters would no longer go to a Rhine country to have their KSS on the Rhine River attested. Instead, they would take the exam in their own country. Also for example Belgium and the Netherlands could experience a similar effect as their boatmasters could be interested in taking the Seine KSS exam in their own country. Conversely, several other Member States will experience lower administrative costs as they will have less exam participants compared to the baseline scenario. This effect will be felt in the Rhine countries for example. The total cost change for an individual Member State will depend on the net effect on the number of participants multiplied by the costs of a KSS exam. In The Netherlands for example the cost for a KSS exam is around 52 euros[76], in Belgium the cost is around 70 euro[77].

Apart from the Member State authorities, also the participants to the KSS exams are affected. If boatmasters are allowed to take the exam in their own country, they will have less travel expenses, they will have fewer expenses for language courses and they will lose less time

[74] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p 133-135
[75] http://www.binnenvaartacademie.nl/home/praktijkexamen
[76] http://www.cbr.nl/download/Tarieven%20Binnenvaart%20per%201%20januari%202014.pdf
[77] http://www.mobilit.belgium.be/nl/Resources/formulieren/scheepvaart/form_binnen_rijnpatent_riviergedeelte.jsp

travelling to the examination centre. In other words, their administrative costs will go down. The external study concluded that the NPV of this administrative costs savings adds up to € 0.7 million by 2030, and up to € 0.8 million by 2050. Further information on the assumptions and the underlying calculations can be found in the external study[78]. The external study concluded that this relatively modest savings can be explained by the fact that for CCNR countries, the exams for the KSS stretches on the river Rhine can already be done in the country of origin and in the native language of the respective CCNR Member State. Moreover, in the case of the Danube, boatmasters from Danube countries are granted KSS recognition on most of the Danube upon passing their boatmasters exam.

However, the effect is uncertain, as each Member State may choose whether or not to implement the measure. Member States that do not want to bear the possible associated extra administrative burden are allowed not to introduce the measure.

[78] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation : technical support for an impact assessment, p 113-119.

Annex 15:
Overview of the available quantitative estimates of the Net Present Value (NPV) of administrative costs, the safety effect and job quality/attractiveness of policy option C

It was not possible to conduct a full cost-benefit analysis of the options as not all costs and benefits could be monetised. Monetised estimates are available for investments costs, administrative costs, safety effects and job quality/attractiveness. For other impacts, qualitative assessments are available.

The table below provides an overview of the available quantitative estimates of the Net Present Value (NPV) of administrative costs, the safety effect and job quality/attractiveness of policy option C, as presented in section 6 of the Impact Assessment Report.

Policy measures	NPV of recurrent administrative costs[79] (euro)		Investment costs	NPV of safety effects[80] (euro)		Job quality/attractiveness[81] (euro)	
	2030	2050		2030	2050	2030	2050
For boatmasters: frequency of the medical check-up *new frequency (measure 2)*	+7.7 All	+13.2 All	0	- 2.0 All	- 3.3 All	0	0
For boatmasters: competence based standards tested by practical exam and mutual recognition of the certificates (measure 2)	C1: -0.5 Private/all	C1: -0.7 Private/all	-5.5	+72.6 All	+182,8	+21.0 Private	+31.6 Private
	C2: -1.9 Private/all	C2: -2.8 Private/all					
Boatmaster certificate for large convoys (measure 2)	Insignificant	Insignificant	0	+ All	+ All	- 0.1 Private	- 0.2 Private
Recognition of EU harmonised crew qualifications (measure 7)	Insignificant Private	Insignificant Private[82]	0	+4.2 All	+11.8 All	+10.4 Private	+ 15.9 Private
Introduction of a boatman exam (theoretical and/or practical) (measure 8 + for C1 measure 9)	**C1:** -0.8 Private	C1: -1.3 Private	Insignificant Public	+	+	+	+
	C2: -3.5 Private	C2:-5.2 Private	Insignificant Public				
Harmonization of required information in SRBs and logbooks (measure 10)	+0.1 Private	+0.2 Private	Insignificant Public	Insignificant	Insignificant	0	0
Recognition/certification system for education/exam programs and recognition of diplomas (measure 3 and 9)	**C1 only:** -2.8 Public	**C1 only:** -4.4 Public	**C1 only:** -2.2	+	+	+	+
Optional: Practical exam for workers entering from outside the IWT sector	(No NPV available: -800€ per exam at boatman level and -6000€ at		-0.1	Insignificant	Insignificant	+	+

[79] Negative figures (in red) refer to an increase in the NPV of administrative costs. Positive figures (in green) refer to a decrease in the NPV of administrative costs or 'savings'.
[80] Negative figures (in red) refer to a reduction in the NPV of safety effect: more accidents will take place, which represent a higher cost. Positive figures (in green) refer to a positive safety effect: fewer accidents will take place, resulting in a higher NPV of the safety effect.
[81] Negative figures (in red) refer to a negative NPV of the impacts on job quality/attractiveness: it represents a loss in wages for workers. Positive figures (in green) refer to a positive effect on job quality/attractiveness: it represents a gain in worker's salary.
[82] Panteia (2014), Recognition and modernisation of professional qualifications in inland navigation: technical support for an impact assessment, p.85: savings due to less checks of worker's SRBs.

(measure 12)	boatmaster level) Private						
Optional :Organisation of exams and issuance of authorisations for all KSS in Member States (measure 16)	Neutral public **(0 to +0.7)** Private	Neutral public **(0 to +0.8)** Private	Insignificant Public	0	0	+	+
Total	**C1:+3.7 C2:+2.4**	**C1:+7.0 C2:+5.4**	**C1: -8,0 C2: -5,6**	**+75**	**+191**	**+31**	**+47**

The following conclusions can be drawn from the table above:

- **The total available monetised cost and benefits - benefits in terms of safety, job quality/attractiveness and even administrative costs outweigh by a significant marging the NPV of the investment costs (to be borne by the public sector)**.

It should be noted that apart from these available monetised impacts, also **other impacts** have to be considered when concluding on the effectiveness and efficiency of option C. For example, for labour mobility, the impact has been calculated in terms of extra workforce available on the labour market, and not in monetary terms. As demonstrated in section 6, this impact is also positive. Furthermore, also the impact on SMEs and the filling rate of vacancies (employment effect) is expected to be positive. It can therefore be concluded that the impacts described in qualitative terms further strengthen the conclusion that policy option C is the most effective option.

ANNEX 16:

GLOSSARY

- **Directive 91/672/EEC:** *Council Directive 91/672/EEC of 16 December 1991 on the reciprocal recognition of national boat masters' certificates for the carriage of goods and passengers by inland waterway* provides for the mutual recognition by the Member States of each other's boat masters' certificates, and establishes a committee to facilitate the process by delivering its opinion on the draft for the amendment of Annex I, i.e. the list of national boat masters' certificates for the carriage of goods and passengers by inland waterway.

- **Directive 96/50/EC:** *Council Directive 96/50/EC of 23 July 1996 on the harmonisation of the conditions for obtaining national boat masters' certificates for the carriage of goods and passengers by inland waterway in the Community* laid down harmonised basic conditions for obtaining national boat masters' certificates for inland waterway navigation between the EU member States. The Directive distinguishes between an "A" type certificate which is valid for all inland waterways not falling under Rhine regulations, and the "B" type which is similar but not valid on inland waterways with a maritime character, such as estuaries.

- **Mannheim Convention:** Its legal foundation is the Revised Convention for Navigation on the Rhine - referred to as the Mannheim Document - of 17 October 1868

- **Danube Commission:** The Danube Commission is an international intergovernmental organization established by the Convention regarding the regime of navigation on the Danube signed in Belgrade on 18 August 1948. The main objectives of the Danube Commission's activity are to provide and develop free navigation on the Danube for the commercial vessels flying the flag of all states in accordance with interests and sovereign rights of the Member States of the Belgrade Convention, as well as to strengthen and develop economic and cultural relations of the said states among themselves and with the other countries. The Member States of the Danube Commission are: the Republic of Austria, the Republic of Bulgaria, Hungary, the Federal Republic of Germany, the Republic of Moldova, the Russian Federation, Romania, the Republic of Serbia, the Slovak Republic, Ukraine and the Republic of Croatia.

- **Regulations for Rhine navigation personnel (RNP)[83]:** The Regulations for Rhine navigation personnel includes all the existing Rhine regulations for navigation personnel. The existing regulations were comprised of three sets of regulations, namely:

[83] http://www.ccr-zkr.org/12020300-en.html

- Regulations for Rhine navigation personnel, adopted in june 2007,
- Chapter 23 of the Inspection regulations for vessels on the Rhine;
- Regulations for safety personnel on passenger vessels, adopted in December 2004.

These regulations have been replaced by the RPN. Most of the rules, however, remain unchanged, since the new regulation merely constitutes a regulatory restructuring designed to ease the reading of Rhine regulations.

- **The "hidden reserve":** capacity reserve which consists of persons with the right qualifications but that are available for IWT work on an incidental basis only. This concerns for example persons that are of an age older than 65 years and/or relatives that may provide support in exceptional cases.

- **Service Record Books (SRBs)** register navigation time and qualifications. They as also provide proof that mental and physical fitness requirements have been met by each crew member. In this respect, SRBs are an important factor for obtaining a certificate to operate in a certain Member State or river basin.

ANNEX 17:

LIST OF ABBREVIATIONS

Abbreviations used in the Impact Assessment Report are presented in the table below.

Abbreviation	Description
AT	Austria
BAU	Business As Usual
BE	Belgium
BM	Boatmaster
CCNR	Central Commission for the Navigation of the Rhine
CEG	Common Expert Group on professional qualifications and training standards in inland navigation
CESNI	Committee for the Creation of Technical Standards in the field of inland navigation
CH	Switzerland
CPI	Consumer Price Index
CZ	Czech Republic
DC	Danube Commission
DE	Germany
DG MOVE	Directorate General for Mobility and Transport
EBU	European Barge Union
EC	European Commission
EDINNA	Education in Inland Navigation
ESO	European Skippers Organisation
e-SRB	Electronic Service Record Book
ETF	European Transport Workers' Federation
EU	European Union
FIS	Faiway Information System
FR	France
HINT	Harmonised Inland Navigation Transport through education and information technology
HR	Croatia
HU	Hungary

IAR	Impact Assessment Report
ICT	Information and communication technology
IT	Italy
IWT	Inland Waterway Transport
KSS	Knowledge of Specific Situations
MS	Member States
NAIADES	Navigation and Inland Waterway Action and Development in Europe
NL	Netherlands
NPV	Net Present Value
NUTS	Nomenclature of territorial units for statistics
PLATINA	Platform for the implementation of NAIADES
RIS	River Information System
RNP	Regulations for Rhine navigation personnel
RO	Romania
SB	Serbia
SK	Slovak Republic
SME	Small and Medium-Sized Enterprises
SRB	Service Record Book
STCIN	Standards of Training and Certification for Inland Navigation
STF	Committee on Social issues, Employment and Professional Training
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe