# RECENT DEVELOPMENTS AND PROBABLE FUTURE SCENARIOS CONCERNING SEAFARER LABOUR MARKETS

*Maria Anne Wagtmann*,
PhD
*René Taudal Poulsen*,
PhD
University of Southern Denmark
E-mail: maw@sam.sdu.dk

***Abstract.*** During the past 25 years, demand for seafarers has changed a great deal, due to the creation of second registers in Western Europe as well as ship register adjustments in other flag states. Concurrently, supply patterns have shifted, with new supply centres emerging in especially Asia and Eastern Europe. In contrast, the supply of officers from OECD countries and especially the demand for ratings from these countries have dwindled. On this basis, key factors that have influenced the supply and demand of seafarers during this period are identified. After this, this paper looks at future challenges for the maritime industries. In connection with this, the following issues are covered: the age and nationality structure of the coming seafaring workforce, future scenarios concerning the provision of seafaring education, and possible future reorganisation of broader shore-based maritime labour between nations, seen in the light of the seafaring labour market situation and education issues. In the paper, distinctions between OECD, transition economy and developing countries are made, when relevant.

## 1. OVERVIEW OVER SEAFARING LABOUR MARKET DEVELOPMENTS IN PAST 25 YEARS

### 1.1. The demand for seafarers

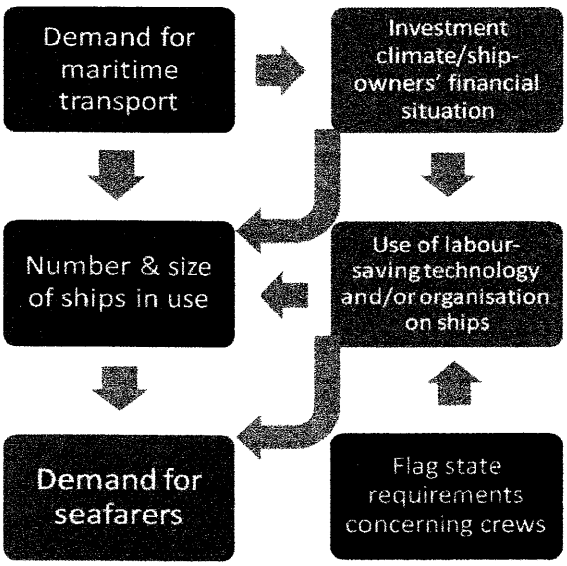


Fig. 1. Global Demand for Seafarers

Globally, approximately 1.2 million people are employed at sea, manning the world's merchant fleet. In comparison, approximately 4 million people are directly employed in the car manufacturing industry. However, the maritime labour force has a crucial importance to the world economy, transporting the vast part of global trade from supplier to consumer. Hence, its development and efficiency plays a key role in the future of global trade.

Total global demand for seafarers is derived from total global demand for maritime transport as well as influenced by financial sector, regulatory and technological changes, as indicated in Fig. 1. Here, the investment climate as well as flag state regulations directly influence the use of labour saving technology (with the corresponding reorganisation) on board ship, whereas individual flag states may have regulations that either enable or prohibit such reorganisation. Moreover, the investment climate and, more immediately, the current demand for maritime transport, influence the number and size of ships in use, which then most directly influences current demand for seafarers.

Over the last five decades, demand for maritime transport has increased more rapidly than global production due to a very rapid increase in global trade. From the early 1960s to the present, total maritime transport has increased from 0.5 to 3.0 trillion ton-miles cargo (Stopford [68]). Only two periods deviate from this overall growth trend: 1973 – 85 and 2008-09; during these two periods total demand in important maritime sectors contracted.

In order to satisfy growing demand, shipowners have improved efficiency in their fleets. Average tanker and bulker vessel sizes soared from the 1950s to the 1970s, and average sizes of container carriers and special carriers have grown rapidly since then. Also automation of work at sea has caused maritime labour productivity to increase. Thus the number of seafarers required to transport a given cargo has been reduced, yet overall growth in the world merchant fleet has caused total demand for seafarers to remain relatively stable from the 1980's to the present, at around 1.2 million seafarers (see Fig. 2).

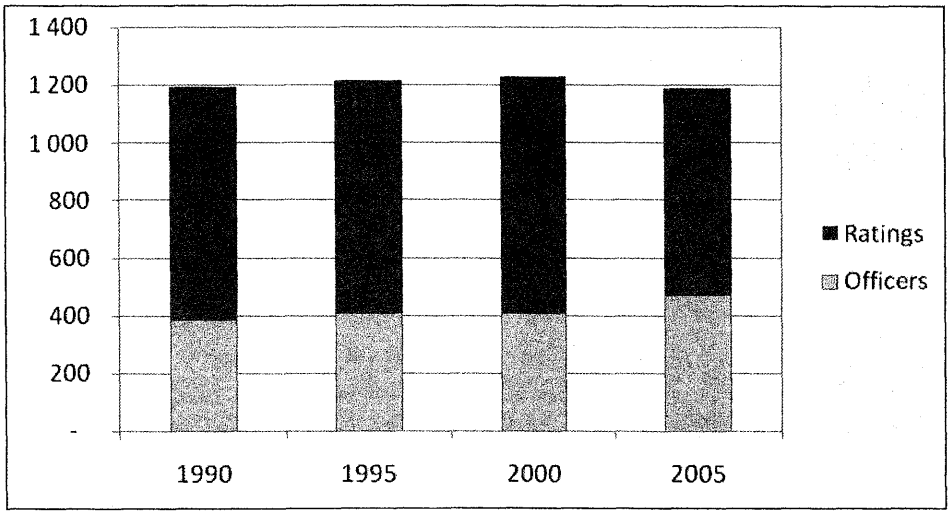


Fig. 2. Employment of ratings and officers, 1990-2005 (BIMCO/ISF [5, 6, 7, 8])

Shipowners either chose to crew and manage their ships themselves or to delegate some or all of these responsibilities to ship or crew management firms. Regardless of whether management is taken care of in house or delegated to external parties, shipowners usually retain control of the flag states used to register their ships (Mitrossi [54]). In addition to flag state requirements concerning minimum crew requirements, as discussed in connection with Fig. 1, various flag states have requirements about crew nationality and/or qualifications, which influence the countries from which ship owning companies or their chosen ship managing or crew managing firms may chose crew. In relation to the selection of the crew, there is also evidence that shipowners seek to retain control of the nationalities of the crew (ibid).

However shipowners are not to be prone reregister their vessels for crew cost reasons alone, as Ready [60] and Willingale [75] do not rank labour cost factors are being the most important cost factors in flag state choice in the current global shipping regime. Still, shipowners' flag state choices have a direct impact on the global maritime labour market, and changes to third country 'open registries' with fewer labour market restrictions have caused demand for seafarers to shift from OECD to Asia and Eastern Europe over the last four decades (Stopford [68]).

In response to 'flagging out', several Western European countries established second registries in the late 1980's, which encompassed a tonnage tax system and allowed European ship owners to employ non-EU/EEA seafarers at lower, home country wages. While the second registries from some European countries, e.g. Norway and more recently Denmark, have succeeded in attracting tonnage, the open registries have also continued to grow. Thus both open and second registries have facilitated the shift in demand for seafarers, including less demand for OECD country ratings. Historically, OECD country

labour unions have protested against open registries, arguing that these allow shipowners to compromise safety and neglect social responsibilities, and some second registries were also met with this union stance (Klikauer & Morris [36]). The cost/quality dilemma is usually present for shipowners, yet crewing costs are still an important percentage of total operation costs (Llácer [42]) on all but the largest ships. Thus shipowners generally chose to minimise wage costs, so that the 1999 global average rating wage was only roughly ¾ of 1992 wages (Bloor, Thomas & Lane [10]). However, quality of labour is not directly related to nationality; it depends on training, experience and competences.

## 1.2. The supply of seafarers

As indicated in Fig. 3, the supply of seafarers from each nation is in part derived from the general labour market conditions in this nation, which, in turn are influenced also by demand conditions at the global and national level, as discussed in the previous subsection.

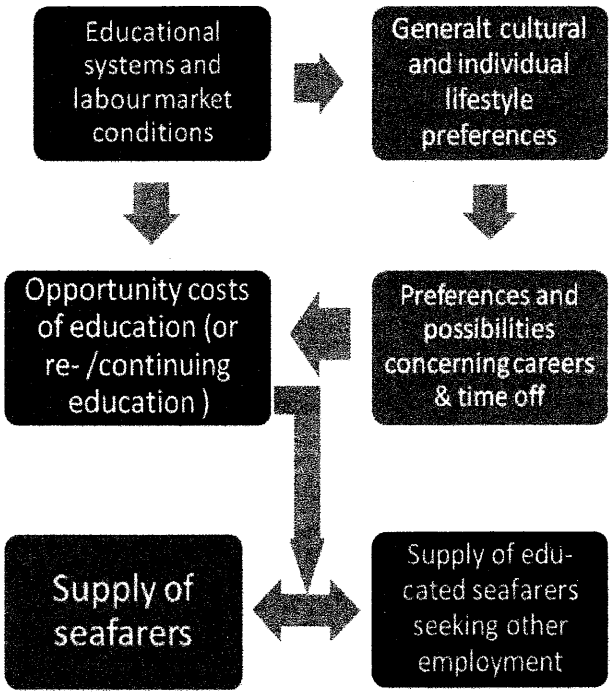


Fig. 3. National supply of seafarers

Fig. 3 indicates that the features of the national and other accessible educational systems (e.g. the cost of education and the possibilities of financial support for studies) as well as the local labour market conditions (e.g. expected wage levels if one completes a certain course of study) influence the opportunity costs of taking part in a particular course of study. Moreover, general cultural patterns in the country in question (e.g. the role of males and females in relation to taking care of children and/or elderly parents) and the individual's lifestyle choices influence the individual's preferences for careers and time-off, in relation to the local collection of career and time off-possibilities. These factors in turn also influence the individual's more subjective opportunity cost function.

However, even if the individual chooses to get education which qualifies him/her to work as a seafarer, this does not necessarily mean that s/he will enter into the seafaring profession at all or remain at sea long, for in many countries there are ample possibilities for finding shore-based employment for persons with seafaring education, and Haralambides [30] indicates that employment ashore is generally preferred to employment at sea. Based on these remarks, shifts of supply between world regions are depicted in Figures 4 and 5 below.

From Fig. 4 and 5, the relative decline in the OECD labour force is clearly evident both for ratings and officers, as is the growth in the supply from the Far East, the Indian subcontinent and Eastern Europe, areas where there generally are greater land-based job market failure problems (Wu & Morris [76]). Moreover, the shifts in supply reflect political changes in, e.g., Eastern Europe (BIMCO/ISF [6]) and China (Wu & Morris [76]). Figures 4 & 5 gives no indication as to the level of training and education, but the new supply centres of maritime labour have focused measurably on the training of seafarers (Sampson [62], Yamamoto [78]), an issue we will return to in Section 3. The historical decline in the supply of OECD country seafarers was not only caused by the emergence of new, cheap supply centres elsewhere; it was also partly attributable to the pull from alternative occupations in other land-based sectors, based on the aforementioned general preference among seafarers for shore-based work (Haralambides [30]).

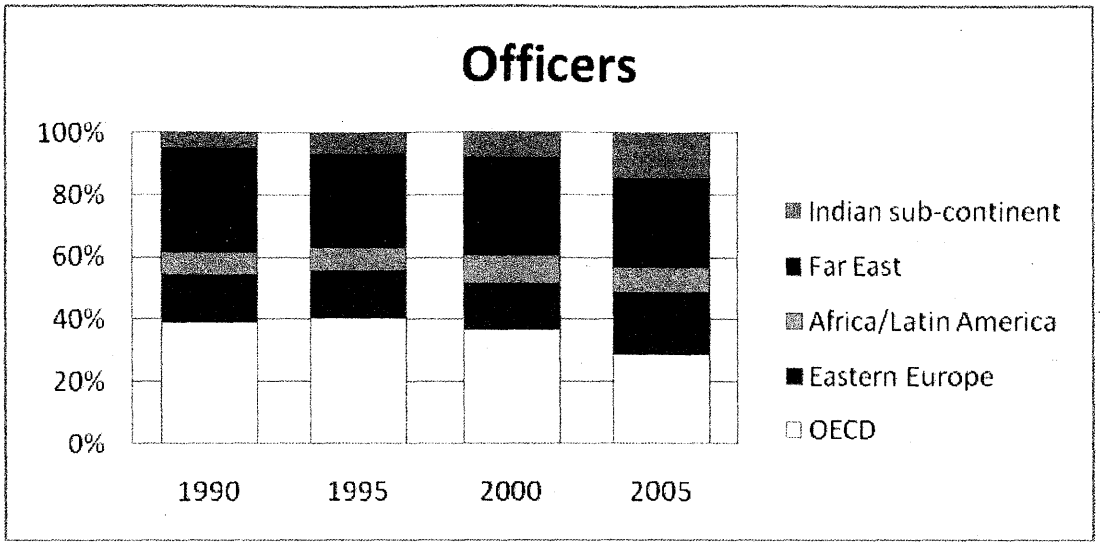


Fig. 4. Supply of officers, by region, in 1990, 1995, 2000 & 2005 (BIMCO/ISF[5, 6, 7, 8])

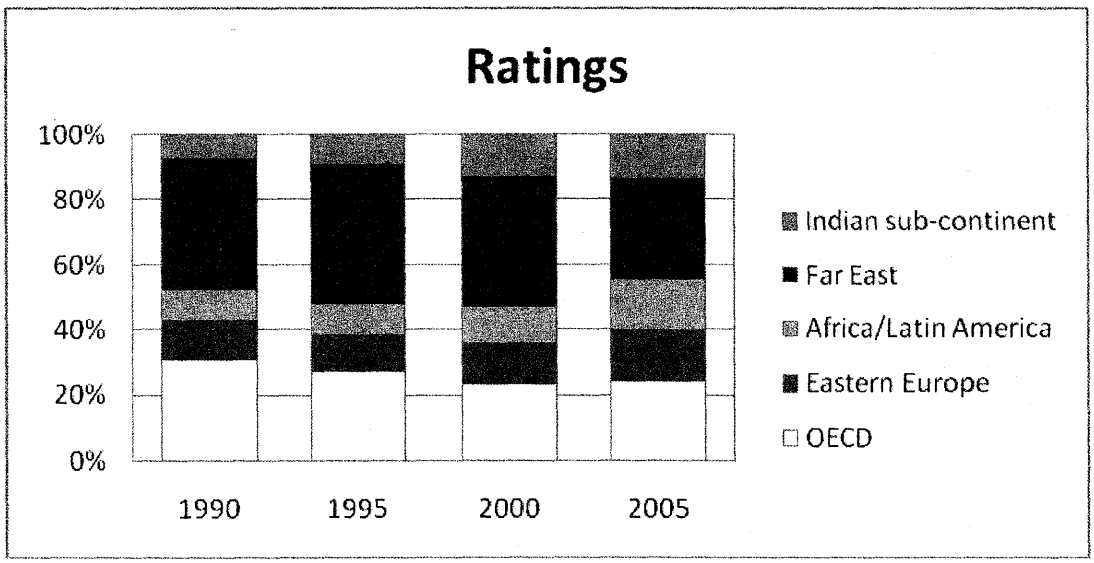


Fig. 5. Supply of ratings, by region, 1990, 1995, 2000 & 2005 (BIMCO/ISF [5, 6, 7, 8])

Several European studies indicate that Western European seafarers have embarked on a career ashore in their home countries after just a few year at sea, due to the possibilities that they have for this either in their home country maritime clusters (EU Commission, DG Fisheries and Maritime Affairs [22]; Southampton Solent University [67]) or in other sectors (see, e.g. Danish Maritime Authority [16]).

## 2. AGE AND NATIONALITY STRUCTURE OF THE COMING SEAFARING LABOUR FORCE

In 2005, BIMCO/ISF [8] estimated the supply of seafarers from the above regions and made a calculation of excess supply or demand, based on global estimates of supply and demand, as indicated in Table 1 below. In short, the BIMCO/ISF calculations indicated a global surplus of ratings of around 23% and a global shortage of officers of around 2 %, yet it should be noted that any catering and hotel personnel on board ship have been excluded from the calculation.

Table 1

**BIMCO/ISF's [8] Seafarer Supply Estimates**

| Supplying region of domicile | No. Officers | No. Ratings | % Officers | %Ratings |
|---|---|---|---|---|
| OECD countries | 130.000 | 170.000 | 43% | 57% |
| Eastern Europe | 90.000 | 119.000 | 43% | 57% |
| Africa & Latin America | 40.000 | 108.000 | 27% | 73% |
| Far East | 131.000 | 230.000 | 36% | 64% |
| Indian sub-continent | 75.000 | 94.000 | 44% | 56% |
| **Total worldwide supply** | **466.000** | **721.000** | **39%** | **61%** |
| Less estimated demand | 476.000 | 586.000 | 45% | 55% |
| **Total surplus or missing supply** | **-10.000** | **135.000** | **-2%** | **23%** |

Drewry Shipping Consultants [19] makes regular projections of seafaring officer needs over the next 4 – 5 years, based on projected net change in vessels, a factor which as indicated in Fig. 1 very directly and immediately influences the demand for seafarers. In November 2008, they expected to see a net change of 9232 more vessels in 2012, resulting in a demand for 97,032 more officers in 2012. Since the time of the calculation, a huge global recession has set in. We therefore expect a smaller total increase in vessels, due to the contraction of demand in 2008-9. However, we believe that the problem of officer shortage will continue to remain on the short- and medium-term, unless the recession is very long. To explain this, we examine the demographic structure of the industry, however sometimes focusing on the labour market for officers alone, as it is this labour market which is marked by the supply shortage situation.

Various sources provide information about the age distribution of officers in the commercial fleets of various countries and regions. On this basis, we have compiled Table 2, which depicts the mean ages of seafaring officers of all ranks and the percentage of officers over 40. Of the included OECD countries in Table 2, the ageing problem is worst among the population of US and German officers, yet the former country no longer is a commercial shipping stronghold. Moreover, if one takes Table 2 together with the nationality patterns depicted in Fig. 4 and 5, we can predict that the trend of replacement of OECD country officers by officers from the rest of world will probably continue, at least in the medium term future, as the average age of officers is generally younger in the non-OECD countries.

However, due to the ageing officer labour force in richer countries, some governments have demanded reports on the officer labour supply situation. In the Netherlands,

Table 2

**Mean age of officers in various developed, transition & developing countries**

| Country | Age average | % > 40 |
|---|---|---|
| Canada | 40.3 | 55.0% |
| Germany | 48.0 | 78.9% |
| Italy | 40.5 | 46.4% |
| Norway | 39.8 | 39.6% |
| USA | 49.4 | 90.9% |
| UK | 45.7 | 70.2% |
| Bulgaria | 39.5 | 40.2% |
| Croatia | 38.6 | 40.7% |
| Latvia | 39.9 | 49.7% |
| Poland | 41.2 | 52.4% |
| Russia | 39.7 | 49.8% |
| Ukraine | 39.3 | 48.4% |
| India | 36.4 | 31.8% |
| Myamar | ≈40 | N.A. |
| Philippines | 41.2 | 57.4% |
| South Africa | 35.8 | 27.2% |
| **Information about sources:** | Glen [26] | Ellis & Sampson [20] |

Waals and Veenstra [73] did the initial forecasting work and also compared the Dutch situation to the situation of other developed maritime nations; their work was followed by a total of three labour market reports by Van der Aa et al [72] about the problem. Other governments such as the Danish government (see Danish Maritime Authority [16]) and the UK government (see Department of Transport, UK [18], Gardner et al [25], Glen et al [27]) followed suit. Academic research on labour supply also exists for the case of the developed countries Greece (Tsamourgelis [69]) and Taiwan (Lin et al [41]).

A number of OECD maritime nations have subsequently embarked on programs to improve their officer education programs and student uptake. In few EU countries, e.g. Italy and the United Kingdom, officers have been able to achieve a modest increase in seafaring employment in recent years (Coleman [14]; EU Commission, DG Fisheries and Maritime Affairs [22]), whereas others, such as Germany and Denmark, may be able to do so in the coming years, due to efforts to attract more recruits (Lloyd's List [45] and http://www.worldcareers.dk/Home/Aktuelt/ Nyt%20fra%20Det%20Blaa%20Danmark/Maalet%20er%20naaet.aspx)

However, a solution to the officer recruitment problems of the current OECD maritime labour workforce does not seem easy to find. There are a few empirical studies and academic papers on the issue (e.g. Cahoon & Haugstetter [12]; Danish Centre for Youth Research [15]), yet Coleman [14] notes that many of the claims about the reasons why young Western Europeans are reluctant to go to sea are made on the basis of assertion and inference, meaning that policy recommendations that stem from this debate are not sure to be effective. This can also be said of Australia (see Griffett [28]; Lewarn [40]) and Singapore (Lloyd's Ship Manager [49]).

In contrast, many of the ratings of developed countries feel "frozen out" and ignored by their home country policy makers. Thus it is not surprising that the global transport trade union confederation ITF, in which the developed country maritime unions play a disproportionately large role in relation to total maritime workforce size (Koch-Baumgarten [37]), expressed its content when the International Bargaining Forum (henceforth: IBF) established the 'IBF Developed Economy Rating Funds' in 2007, to 'encourage companies to offer employment to seafarers from traditional maritime nations who had suffered major job losses during the past two decades' (International Bargaining Forum [32]). However, we do not expect that this IBF measure will rectify the marginalization experienced by the OECD country ratings.

Turning now to the transition economies of Eastern Europe, it is generally slightly easier to recruit cadets in their regions due to the aforementioned problem of land-based job market failure (Wu and Morris [76]), although there also is some evidence that this is becoming more difficult in countries such as Poland and Latvia (see, e.g., EU Commission, DG Fisheries and Maritime Affairs [22], Latvian country report, p. 11; Glen [26]). Moreover, in some Eastern European countries (e.g. Estonia and Poland), seafaring employment is generally in decline (ibid, Coleman [14]); this development may probably be at least partially attributed to the lack of critical mass in and/or the decline of the national shipping industry of these countries (EU Commission, DG Fisheries and Maritime Affairs [22]).

In relation to work for domestic versus foreign employers, e.g., Ellis and Sampson [20] indicate that while 37.3 % of all Russian seafarers worked on vessels in the national fleet, the figures for the Ukraine and especially Poland were much lower, at 16.0 % and 0.2 %, respectively, due to the lesser strength of the latter two countries' merchant shipping fleets. However there is also the trend that some Eastern European seafarers shift from the national fleet to an international operator, if such a switch can give them a higher salary (see EU Commission, DG Fisheries and Maritime Affairs [22]). We expect that these tendencies will continue.

Seafarers from Russia and Eastern European countries work predominantly for employers of Western European origin (Wu and Morris [76]); thus a number of Western European shipowners seem prone to recruit officer labour from countries near to them. For the case of the Eastern European seafarers from countries that are now members of the EU, certain issues related to employment have been facilitated for the Western European employers, whereas some restrictions on non-EU nationals exist in a number of EU

flag registers. At the same time, for many of the less well-educated Eastern European seafarers, here especially ratings and personnel in contact with passengers on ferries and cruise ships, their employment seems contingent on their salaries not rising too fast. For example, Polish salaries for work at sea for global employers have fallen to a level comparable to salaries for shore-based work in Poland, and some Polish seafarers have also been replaced by seafarers from the developing world (EU Commission, DG Fisheries and Maritime Affairs [22]). We expect that these labour market developments will continue in the near and medium-term future, due to the fundamental cirumstance of a small shortage of officers and a large surplus of ratings, as indicated in Table 1.

Concerning the developing countries, these provide the shipping sector with the large majority of ratings. However, many persons in developing countries leave maritime schools without finishing their studies, due to the poor quality of the education, not being able to find a cadet berth and/or not being able to continue to finance their education (Sampson [62]); thus, there are a huge number of ratings on the world market with some higher-level maritime education. According to Obando-Rojas [55], this results in a huge number of ratings especially in developing or transition economies who are stuck in a vicious cycle: They cannot get employment due to their lack of educational qualifications (and the oversupply of ratings), yet they also cannot improve their qualifications so that they may work as an officer, due to a lack of financial means. We will discuss this problem further in Section 3.

Among the developing countries, those that supply seafarers are traditionally believed to seek to earn additional income by training ratings and officers for the world market. E.g. Egypt and Turkey train officers with the intention of employment in foreign fleets, and in these two countries, there is competition to be admitted to maritime programs because income prospects are better at sea than in shore-based jobs and the reputation of maritime work is higher (Pourzanjani et al [59]). Moreover, the developing countries Philippines and China are the world's largest total suppliers of seafarers (BIMCO/ISF [8], Ellis & Sampson [20], Glen [26]); BIMCO/ISF estimated that the China supplied 122,208 seafarers in 2005 and the Philippines 120,399 (Glen [26]). Aside from the statistics in the Table 1, JICA [35] forecasted the total 2005 supply of seafarers from Egypt at 4680 and the total supply from all of Africa at 24,732.

As concerns mean ages in the developing countries, Table 2 shows that officer mean ages are even lower, with the exception of the Philippines, where the number of persons entering maritime officer training programs has been declining in recent years, an issue we will return to in Section 3. For some of the developing countries, general life expectancy is much lower than in the developed countries and transition economies. However, for many developing labour supplying nations, we cannot to rule out age or non-job related health condition discrimination on the part of some maritime employers (Leggate & McConville [39]; Wagtmann [74]). On the other hand, it is also been observed that a number of Filipino seafarers transfer to the national Filipino fleet after reaching the age of 45, possibly to be closer to their families (Leggate & McConville [39]). Moreover, some seafarers from a variety of developing nations may simply perceive that they have earned better than many of their nationals on shore, and they therefore chose to retire early. Finally, there may also be impenetrable "glass ceilings", as some maritime employers from the developed nations seem to prefer to employ own nationals or own region nationals in senior officer positions (see Ellis & Sampson [20] or I-maritime Consultancy Private Limited [31]), and some EU flags specify that the shipmaster must have EU nationality.

As concerns recruitment in developing countries, for both ratings and officers, finding potential seafarers has also become more difficult in booming regions. For example, certain urban regions of India and

China, which have enjoyed relatively high growth rates, have experienced that the number of potential recruits to seafaring education and jobs has fallen, probably due to the other choices offered to young people in these areas (Lloyd's Ship Manager [47]). In contrast, in China and the Philippines, the main regions supplying seafarers are the poorer rural regions (Zhao & Amante [82]), and this supply is expected to continue as long as opportunities are lacking in these regions. However, Bernhard Schulte

Shipmanagement's CEO Rajaish Bajpaee believes that seafarers from all parts of the developing countries, rural or urban, would take shore-based employment, if given the choice (Hand [29]), meaning that shipowners should consider for the medium- and long-term future how to ensure that they offer sufficiently good conditions to be able to attract labour on ship

For the case of India, the biggest supplier of officers from the developing countries, the taxation situation skews the market: Indians serving in the domestic fleet pay higher taxes and often also earn less in gross wages than Indians in foreign fleets. Thus India faces a national shortage of seafaring officers, due to the fact that its officers are recruited to serve in foreign fleets that can offer better wages and conditions. This has, incidentally, also happened in certain other developing countries with national shipping activities, e.g. Malaysia (Osnin [56]), without the tax skew. In India, this lead the country to ease its ban on the employment of foreign-trained officers (Lloyd's List [44]). Thus it is expected for the medium term future that India and several other developing countries with own national shipping industries will continue to supply officers to the global fleet, while at the same time having to import officers for own fleets.

Certain other developing countries that have not yet experienced high growth, including some of the least developed countries, are seeking to promote their countries as maritime labour suppliers to the world shipping market. In Ghana, maritime lecturer Amanhyia [2] is seeking to leverage what he sees as Ghana's potentials, due to the country's official and teaching language of English and its relatively strong maritime infrastructure. However, he also points out that the skills of marine engineers could also be transferred to other industries, e.g. the Ghanaian petroleum and gas industry, meaning that also here the marine engineers would not necessary stay on board ships long. (This also occurs in other developing maritime nations such as Malaysia, see Osnin [56]). In contrast, Nigeria (Essiet [21]) and Jamaica (Lloyd's List [43]) seem both to be aiming to supply officers who will stay in the profession relatively long.

To sum our age and nation-based predictions for the medium-term future up, we believe that most developed nations will continue to have trouble finding applicants to maritime officer programs, leading to the further ageing of their seafaring labour forces, and that this problem will also spread to some extent to certain Eastern European nations as well as to relatively booming urban areas in certain developing nations. Moreover, we predict that there will continue to be a huge global overabundance of ratings and also a slight deficit in officer labour on the global market, unless the current economic recession is very severe and long-standing – and that the seafaring labour as a whole will increasingly be sourced from developing and transition economy countries with maritime education facilities and land-based job market failure, although some positions (especially as officers) will still be accessible to OECD or EU country residents only.

## 3. FUTURE SCENARIOS CONCERNING THE PROVISION OF SEAFARING EDUCATION (ALSO CALLED MET)

### 3.1. The current situation in various world regions

In this section, we will first 'set the scene' by providing an overview of the current situation. Here, we will start with the OECD countries, with the main focus on Western Europe. In recent years, a number of Western European maritime nations have sought to use public moneys to improve MET and other infrastructural conditions, to ensure the future of the maritime sector in their country (Jakobsen et al [34]).

Many of these policies have been framed in the national political debate as reinforcing or ensuring the strength of the "cluster", a term from the well-known work *The Competitive Advantage of Nations* (Porter [58]). In Norway, Porter's concepts were put to use in recommending national industry policy for the maritime sector in Bjørndalen & Reve [9]. After this, a number of other actors in other Western European maritime nations demanded similar national maritime cluster studies and subsequent national maritime cluster policies; also the EU Commission recommended the cluster approach in a 2006 white paper (EU

Commission [23]). Moreover, key aspects of 'maritime clusters' were debated and promoted in a few other OECD nations, e.g. Australia (Griffet [34]).

Based on the above developments and the general high national income level, most MET institutions in Western Europe and the other OECD nations enjoy fortunate circumstances in comparison with their compatriots in the transition economies and the developing world. For the OECD maritime nations, it is a common characteristic that the public sector has sought to varying extents to promote and support the home country shipping firms. However, the extent of public education support has varied from country to country (Mazzarino [51]), with MET programs in some countries (e.g. Canada, Greece, Japan, UK, USA) being financed partially by student fees and in cases of needy students varying amounts of scholarship money from various sources and other countries providing free education with either some need-based living expenses financing for students (e.g. Germany) or living expenses financing for all students (e.g. Denmark and Sweden). Additionally the education-related roles of shipowners or ship and crew management companies have varied somewhat from OECD country to OECD country.

In contrast, most MET institutions in the transition economies and the developing countries are not nearly so well-off in relation to the financing of nautical education (Amante [3]; Barzan [4]; Bonnin et al [11]; Cicek & Er [13]; i-maritime Consultancy Private Limited [31]; JICA [35]; South African Press Association [66]; Uy & Duong [71]; Wu [77]; Yamamoto [78]; Zac et al [81]; Zhao & Amante [82]). However, it is important to note that the shifts in supply and demand described in Section 1 of this paper could not have taken place if developing countries, despite their limited means, had not invested in MET, and if maritime academies in Eastern Europe and Russia had not taken great care to ensure their MET's survival and continued adaptation to global market conditions during and after the difficult transition period.

There has, however, also been concern about varying levels of quality in MET programs around the world; therefore, the International Maritime Organisation (henceforth: IMO) has sought to put forth global standards through, e.g., the STCW 95 Convention and its amendments, including the "white list" of countries said to fulfil the convention, published since 2000. However, this does not mean that only the developing and the transition economy countries have MET quality problems; there are also some MET deficits in developed countries (Islam [33]).

However, a few of nations currently on the white list of the IMO's STCW 95 Convention are alleged to tolerate that some of their home MET institutions offer very substandard training in relation to the STCW demands (Sampson [62]; Short [64]). This claim has been made for the case of certain schools in the Philippines; in connection with this, it has also been suggested that it probably was not politically expedient to the world maritime community to exclude the Philippines as the largest seafarer supply country to the world market over the past decades from the IMO's white list, meaning that the deviant MET institutions were in essence indirectly allowed to continue such irresponsible behaviour (Sampson [62]). In relation to this, Sampson [62] has also focused on economic aspects of the current global governance of MET – or lack thereof, as, e.g. Yamamoto [78] has argued. Fig. 6 seeks to illustrate her argument that mandatory further private investment is necessary toward the goal of ensuring that institutions in low and medium income countries can provide sufficient quality in MET. Especially the newer need to invest in sophisticated and expensive training equipment such as simulators has worsened the finance crisis of MET institutions in the middle and low income countries, and such investments have often been made to the detriment of equally necessary investments in staff qualifications (Cicek & Er [13]; Sampson [62], Short [64]). In such systems, Yamamoto [78] and Zac et al [81] note that due to the wish to achieve a source of income and/or to insufficient governmental support, a number MET institutions in developing countries or transition economies adhere to a policy of merely seeking to fulfil a bare minimum of skills, experience and competency, meaning that mere regulation attempts via certification systems is insufficient in itself to ensure a global level of quality.

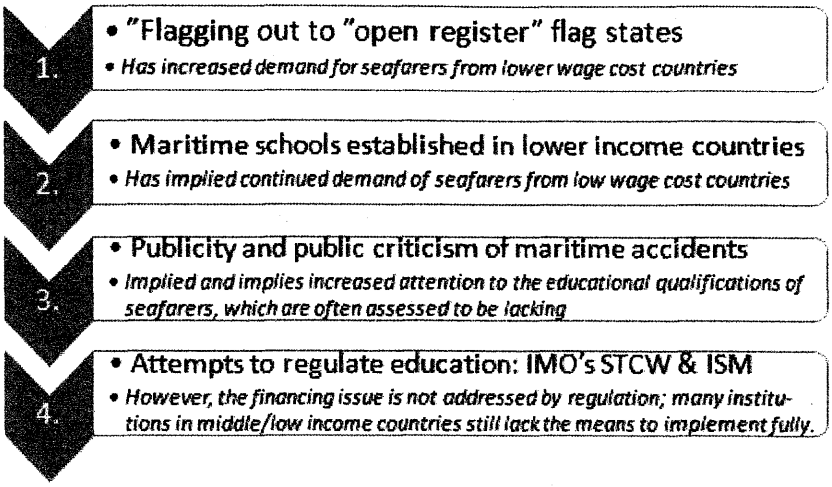


Fig. 6. An overview of events leading to the current state of global maritime education (after Sampson [62])

This is, however, not mean that there are not excellent MET institutions in developing or transitional economies. Of course there are - and that in a plethora of countries. E.g. in St. Petersburg, Russia, the Admiral Makarov State Marine Academy is a renowned institution that meets the needs of the global community and of local stakeholders (Kostylev [38]), and in its closest neighbouring country, the Estonian Maritime Academy has been very successful in research and educational cooperation with industry (Yilmaz et al [79]). Also in India, there are some first class institutions, in both the public and private sector, yet other institutions in both sectors are marked by quality problems (i-maritime Consultancy Private Limited [31]).

The Philippines is perhaps the country that is marked by the greatest variation in quality. On one hand, the country is the developing country which has received the large amount of non-state sector support for MET, which has come from a multitude of individual shipping companies, national shipowners' associations from countries such as Japan, Norway and Netherlands, and even the ITF (Hand [29]). On the other hand, many of the country's MET institutions, including especially those who have received little or no support, are marked by huge quality problems. According to Amante [3], before 1991, less than 50 % of maritime engineering and only around 40 % of the navigation officer graduates were able to pass the officer license examinations, and this situation has not improved at a number of Filipino maritime schools. Therefore, it is not surprising that the Philippine Commission on Higher Education reports a decreasing trend in the graduates of officer level courses, as previously mentioned in Section 3: In 1997, there were 15,754 graduates, which decreased to a mere 3,667 graduates in 2004.

In the above, we have mainly focused on officer training. However, for developing and transition economy countries that are seeking to improve ratings training, there is South African evidence (Bonnin et al [11]) that countries and educational institutions seeking to improve ratings training are faced with even more difficult financing circumstances, due to the oversupply of ratings on the world market, which leads to hyper-competition on a low cost basis and even less changes for achieving industry support for such training.

### 3.2. The short-and medium-term future scenario for MET

For the short- and medium-term future, we expect to see debate about the future of MET in the OECD countries. On one hand, as indicated, some OECD governments have investigated huge sums in MET, and therefore various stakeholders may want to continue such investment. Moreover, the slight global shortage of officers may also make the OECD countries more prone to continue to invest in MET. On

the other hand, there is the problem of recruitment. Thus other voices such as Ruhallah [61, p. 28] state that "the industry should be focused on training, recruitment and retention of seafarers from developing countries. Any recruitment drive in maritime nations is unlikely, given the economic and social expectations of young people in advanced countries, to be successful." More radically, Pourzanjani et al [59] ask why Western Europeans do not fully outsource maritime education and training to other countries.

Concerning developing and transition economy countries, some academics and business actors advocate a firm or firm coalition-specific model for labour supply chain management, from education to retention issues, via firm-specific investments through, e.g., manning agents (see, e.g., Ruhallah [61]). Liberalists would tend to prefer such a system, and other persons with less optimistic views of various public sectors' capabilities of playing the leading role in solving maritime education problems also in the case of more favourable public sector financial circumstances also adhere to this opinion. For example, the Philippine manning industry, on the basis of the impressive results of Norwegian and Japanese investments in seafaring education in the country, would like to attract similar investments from other shipowners (Lloyd's List [46]).

However, there is still a large segment of the global maritime industry that views investment in seafarers' education as an exclusive public sector responsibility and is loath to contribute (Lloyd's Ship Manager [50], Short [64]). Due to this lack of broad industry interest, we expect to see only moderately increased growth in these types of arrangements on the short- and medium-term future, and we do not believe that all institutions in developing and transitional economies will be able to provide quality MET in the near future. Still, from around 2005 to 2008, the tendency seems to have been that more and more maritime schools in developing and transition economies were contacted by shipowners (see, e.g., Barzan [4]), due to the shortage of seafarers. Also InterManager has begun from 2008 to require of its members that they adapt a formal cadet programming offering at least one cadetship per ship under full management by the member in question (Lloyd's Ship Manager [48]). Here, it is our impression, based on conversations with industry stakeholders and various contributions in the global maritime press and information network, that most shipowners, ship management and crew management firms that have decided to invest in officer education are not likely to pull out of their investments completely due to the recession, as they perceive that there will be a need for more officers after the recession. On the part of the developing and transition economies, we believe that such retention and commitment strategies are welcomed, provided of course that the investors from the shipping industry adhere to basal ethical rules concerning MET, as they in most cases do.

## 4. FUTURE LAND-BASED INTER-COUNTRY REORGANISATION ISSUES IN MARITIME LABOUR MARKETS

In relation to the cluster policy efforts of the "traditional" European maritime nations, as described at the beginning of Subsection 3.1, there is a fundamental dilemma, which also concerns other OECD maritime nations such as Japan (Nishikawa 2002), Australia (Lewarn [40]) and Singapore (Danish Maritime Authority [17]) as well as the Hong Kong Special Administrative District of China (Zarach [80]): On one hand, land-based maritime industry positions have traditionally been filled by former seafarers who are believed to possess superior and/or unique skills in relation to these positions (Danish Maritime Authority [16], Gardner et al [25], Lewarn [40], McConville & Glen [52], Pettit et al [57], Southampton Solent University [67]). On the other, works such as Haralambides [30], Lloyd's Ship Manager [50], Ruhallah [61] and Wu & Morris [76] indicates employment ashore is generally preferred to employment at sea and thus that land-based job market failure contributes to the propensity of young adults to seek employment at sea, as also mentioned previously in multiple subsections of this paper.

Both points taken together might in the worst case result in OECD maritime nations/districts not being able to educate and train enough seafarers to maintain their shore-based maritime industries. In this circumstance, Fig. 7 indicates three possible ways in which the domestic maritime industries and society at whole in a country may respond to this problem. The Scenario 1 approach of developing new, land-

based educational programs that provide land-based staff with many of the qualifications that were traditionally acquired through former officer-staff members' work experience at sea has been followed by some maritime sector firms in especially the Northern European countries of Germany and Norway (and to some extent the Netherlands), and it is marked with grey green as it would ensure maritime positions on land, yet in the case of maritime accidents, it may also be potentially questioned in public debate if e.g. accident analysis shows that some of the factors that led to the accident situation could be attributed to land-based mistakes by personnel without experience on board ships.

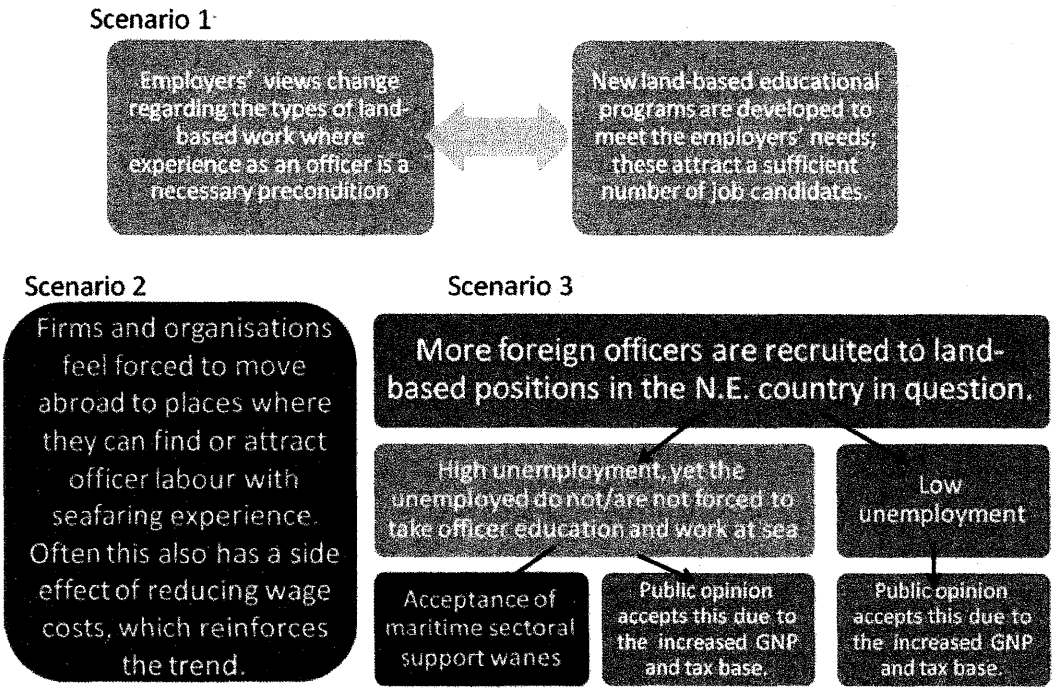


Fig. 7. Possible maritime industry and societal reactions to trained seafarer shortages

Scenario 2 is the scenario feared especially by the UK maritime cluster (Gardner et al [25], McConville & Glen [52], Pettit et al [57]), both because the chain of events of Scenario 2 has already happened to some extent in this cluster (see ibid) and because the cluster also contains relatively many international institutions (such as IMO) and organisations (e.g. the headquarters of ISF/ICS, Intertanko, Intercargo, ITF, etc.) as well as shipping classification and risk assessment companies and maritime insurers and financiers.

The trend of increasingly also recruiting foreign officer labour to land-based positions (i.e. Scenario 3) has been mainly pursued heavily in Singapore and Hong Kong to some extent in the UK (probably due to (a) the presence of international maritime institutions and organisations having headquarters in London and (b) many years of domestic immigration policies allowing well-educated persons from other countries, including especially Commonwealth nations, access to work in Britain) and Norway (due to this country having been unique among OECD nations in that it has had very low unemployment or no unemployment for decades). To some extent it has also been made more possible than previously in later years also in, e.g., Denmark, Germany and the Netherlands through similar differentiated immigration policies that allow firms to employ well-educated persons from non-EU countries in leading positions.

However, Scenarios 2 and 3 also imply an implicit societal threat to the current maritime education financing and also cluster policy-related preferential tonnage tax regimes, where these exist, which then would have further effects upon maritime labour markets. For if fewer nationals are employed in the

maritime sectors of certain traditional maritime nations, public support for the preferential regime that maritime companies are subjected to may wane further due to one or more of the following factors:

- Liberalist criticism raised against such regimes (e.g. Schjelderup [63] or Sørensen [65]).
- Especially in the case of high unemployment, domestic public opinion may also favour divesting public support to industries that do not provide jobs for current residents in the countries in question, and anti-immigration parties may also in some countries raise criticisms of the programs that bring foreigners to work in domestic industries, regardless of the underlying supply, demand and potential GNP-enlarging dynamics.
- Finally, left-of-centre and other current 'globalisation regime' critiques (e.g. Fougner [24]) may also raise the charge of 'economic nationalism' of especially the Western European maritime cluster policies, thus furthering unfavourable public opinion on a third front more related to discourses on ethics and global responsibility for development.

In the situation that maritime education finance is cut and/or the preferential tonnage tax regime is partially or totally abolished, we would expect to see labour market effects to the effect that the number of seafaring officers from the traditional OECD maritime nations declines even further and has to be accommodated for by additional increases in educational output and recruiting of officers from transition and developing economies.

In contrast to the situation in OECD countries, in many developing and transition economies, maritime officers, and here especially navigation officers, have to go abroad from their native country if they wish to seek the shore-based employment for which their nautical training also qualifies them to fulfil (EU Commission, DG Fisheries and Maritime Affairs [22], Country report of Poland). However, to the extent that transition economy and developing nations are able to establish shore-based maritime firms (e.g. shipping, crewing or ship management firms or firms in ports) or flag state administration centres, more own shore-based jobs will also be created. For developing and transition countries whose infrastructures are able to provide airport connections and reliable internet, electricity, telephone and cell phone services, there is also the possibility that some financial and 'headquarter' functions may also be moved to these countries. Here, issues such as ownership preferences may decide this, as both family owners and national institutional investors may prefer not to move the 'headquarter' functions abroad (see Mitrossi [53, 54]). Moreover, issues related to general risk in foreign operations (levels of corruption, political stability, criminality) will also be determining factors in the potential decision to move such functions abroad as well as the overall cost level of doing business in the country in question (Jakobsen et al [34]).

In contrast, the potential shore-based labour market for former marine engineers is deemed to be larger in most transition economies and developing countries, as marine engineers can potentially work in the domestic factories or utilities industries (Southampton Solent University [67]) as well as in the petroleum industries of the many developing countries with oil (Amanhyia [2], Osnin [56]). However, here, the wages offered to marine engineers in their home countries may not be competitive in relations to wages that could be earned abroad, so it may be that a substantial portion of marine engineers from transition economies and developing countries also will choose to work abroad, to the potential detriment of maximizing the building up of the domestic utilities and land-based industries. However, in both cases, it is to be expected that many ex patriots will send some income home to family and relatives in their home countries, as this is common practice in most developing and transition economy countries.

Although many developing and transition economy nations, such as the nations of the Africa Union (African Union [1]), would like to build up own shipping industries, the prospects for this are not very positive in our opinion, due to the capital intensive nature of the industry and the lack of private sector donors for such projects. To the contrary, some of the transition economies' shipping industries have experienced demise or deminished market share in recent decades (EU Commission, DG Fisheries and Maritime Affairs [22], Country reports of Estonia, Latvia, Lithuania, Poland and Slovenia; Wu & Morris

[76]), and even among those transition and developing countries that are able to maintain an own shipping industry, there are problems in that many of the officers prefer to work in foreign shipping companies able to offer higher wages and better conditions (see Osnin [56] concerning Malaysia, I-maritime Consultancy Private Limited [31] for the case of India and Wu & Morris [76] for Russia and China). Finally, in some of the least developed countries, the infrastructure deficits are quite severe, meaning that there are substantial locational barriers to such establishment (UNCTAD [70]).

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