My Lord Chairman

1. Yesterday’s session (29th July 2014) covered a great many areas, some in quite some depth, however there was not enough time to cover all the aspects outlined in the questions identified in advance. I would like to take this opportunity to provide additional information for your consideration; I would also like to clarify a point made yesterday about the process for the introduction of the Polar Code.

Question 3 – Critical Infrastructure

2. There are a number of critical infrastructure elements that need to be in place to support the development of the Northern Sea Route (NSR); many of which were discussed in some depth yesterday. However, time pressures prevented the discussion from addressing the following additional issues:

a. Shore facilities for off-loading oil or oily waste. The Polar Code will introduce a total ban on the discharge of oil or oily waste even though it may be permissible within the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations. This will be the case for all vessels to which MARPOL applies, affecting both those that transit the region and those that operate solely within it. Thus the ports to which the vessels travel will have to ensure that there is a significant uplift of the facilities required to process such waste once the vessel docks. A corollary to this aspect is the increased likelihood of such discharges being delayed by those vessels expecting to exit the region until they do reach an area where they are permitted. This may lead to an increase in pollution levels at the boundaries of the arctic region.

b. Hydrographic Charts. There is a dire shortage of up-to-date, accurate charts for the arctic region and the gathering of such information will be costly and time-consuming. There are a number of reasons why the UK should support this data-gathering exercise, not least of which is the need to retain the UK Hydrographic Office’s (UKHO) prime position in the world. This doesn’t mean that the UK should directly support hydrographic surveys throughout the region but there are a number of reasons for taking direct action:

   i. Commercial Data. Admiralty Charts are acknowledged as the ‘gold standard’ throughout the maritime domain, with many countries’ military assets using them for general navigation. Whilst the UKHO has a number of bi-lateral and multi-lateral data exchange agreements already in place if there is no data to be exchanged then they remain largely irrelevant. Keeping the UKHO at the top of the table may require additional data gathering effort otherwise commercial vessels will look to other sources of hydrographic charts for the NSR and hence may also stay with those sources outside the polar regions.

   ii. Military Data. Hydrographic data gathered from within a coastal nation’s EEZ can only take place with that nation’s agreement and must be shared with the nation involved. There may be data which is required by the UK military to support FCO, MoD and Coastguard requirements and which the UK may not wish to share with a coastal nation. Military Data Gathering (MDG) is recognised across the world as a means by which militarily significant data can be gathered without the permission from or sharing with the
relevant coastal nation – provided it does not then become commercially available. In order to support this, the Royal Navy’s Hydrographic Survey Vessels could be used to gather this chart data; this would have the benefit of gaining the data but would also exercise the UK’s rights to operate within a contested area, supporting a number of domestic and international efforts. By way of example, it would also put pressure on Russia at a sensitive time should an RN vessel be deployed into the Barents Sea or even the Kara Sea.

c. Disaster Relief. Each coastal nation has a responsibility to provide search and rescue capabilities covering zones that are agreed through the IMO. However, it may be the case that to support an incident, the coastal nations’ assets may be fully committed and in such an event it would be for adjoining nations to help ‘close the gap’ in the coverage. For this to be viable international agreements need to be in place to enable each nation to move into adjoining areas or zones – and that requires assets which are capable of being deployed for longer periods than might otherwise be the case.

d. Policing. As was identified during the discussion yesterday, enforcement of the regulations will be a significant requirement. Ports of departure or destination will need to develop inspection regimes for those vessels whose transit will take them through the arctic region. However, policing of the area will also need to be achieved and whilst it is incumbent on those coastal nations to police their own territorial seas and EEZs, there is a general requirement for policing the High Seas. Again, the various coastal nations must have assets in place to cover the world’s oceans but it may be prudent to consider developing a UK based capability to support such policing. In a similar way to MDG, the ability to deploy a UK military asset into the region would influence coastal nation’s claims to additional territory within the Arctic Ocean.

**Question 4 – Environmental Factors**

3. A number of environmental factors were discussed during the session yesterday but there are a number of aspects that were not addressed due to the pressures of time. One of the main element was that of the physical environment:

a. Sea Bed Information. Whilst there is a need for hydrographic surveys to identify the safe routes through which vessels may transit, there is also a need to survey the whole of the basin to ensure an accurate picture of the sea bed to be developed. This will support national claims and will identify where, by extension, the high seas limits are defined. There is simply a significant lack of information about the shape and extent of the continental shelves, the abyssal plains and the areas of land which do dry out and which may therefore extend national coastlines and territorial claims.

b. Physical Oceanography. Climate models have consistently failed to provide accurate forecasts of the way in which the ice melts and reforms outside the local effects of the weather. This has led in the past to a lack of faith in the models that has a detrimental effect on the commercial risk assessments for the region and therefore lost opportunities. In part this is due to a limited understanding of the physical processes by which energy is transferred from the atmosphere to/from the ice and between the ice and the ocean itself. However, there is also a significant shortfall in the measured data sets that underpin the models and significant investment needs to be made in gathering the physical oceanographic data both in
the short and medium terms. The UK’s current investment in persistent ocean data gathering platforms through the Technology Strategy Board (and the MoD equivalent, the Centre of Design Excellence (CDE)) should be accelerated in order to take advantage of this developing opportunity.

c. Meteorology. Again, climate models have consistently underplayed the observed changes within the arctic region. Partly this is down to a need to understand the physics in this complex area and in particular the way in which the rotational forces decrease in importance around the pole itself. However, there is also a severe shortage of observations which can be used to initialise and test the model outputs. Whilst satellite observations can provide wide area coverage, there is also a requirement for ‘ground-truthing’ the satellite data. This is currently being undertaken by multi-national teams but only in a few, widely scattered points and they must be increased in density in order to support the data gathering effort.

d. Weather and Ice Forecasting. Weather and ice forecasting capabilities are a critical element in ship routeing and whilst there are a number of centres providing these services their quality and robustness is a direct function of the actual weather information gathered across the region.

4. Data gathering points on land, sea and ice are few and far between and more effort needs to be put in to increasing these observations – and getting the data out to the WMO network in a timely fashion for ingestion into the various regional and global models. The UK Met Office (UKMO) is recognised as a world leader for global and North Atlantic forecasting but should be supported in developing an arctic weather and ice forecasting service. There are regional forecasting centres (Moscow is a significant supplier) and they should either be invested in (bilateral agreements?) or, preferably, overtaken by the UKMO as the preferred source.

5. Ice information and forecasts are critical for ships which may want to transit outside of territorial waters – especially for those with no ice strengthening who also want to avoid the significant charges local ice-breaker escorts bring.

Question 6 – The Polar Code

6. I stated yesterday that the Polar Code would need to go through a ratification process after its coming into force next year. I was, however, somewhat misleading as that would be true only for new instruments introduced through the IMO. The Polar Code, however, is an adjunct to existing instruments and as such requires agreement in the working group followed by the various sub-committees and overarching committees before approval in a plenary session of the main IMO body. Once that has been achieved, the adjuncts will come into force after a short period by tacit agreement. No ratification of the Code is required, as the instruments themselves have already been ratified.

7. There are a number of provisions within the Code that will have an immediate impact on vessels using or intending to use the arctic:

   a. Lifeboats. At present, SOLAS requirements enable the use of open lifeboats and there are a significant number of vessels that rely on them to retain certification. However, when the Polar Code comes into effect, these types of lifeboats will be prohibited. Normally, amendments provide a period of grace whereby existing vessels that fail the new regulations
are allowed to continue operations for a defined length of time. However, there will be immediate ban on those vessels with open lifeboats and although there are very few currently operating in the arctic some vessels (especially tourist or cruise ships) may fall within this category.

b. Discharges. As mentioned earlier, there will be a number of additional restrictions on the discharge of waste products above and beyond those permitted under current MARPOL regulations. At present, it is the distance from land that is the defining element in determining whether or not discharges may be allowed. However, proximity to ice either as an ice shelf, an iceberg or loose ice above 1/10 will also be an element in the decision making process and the policing of this aspect will require wide area search capabilities; these in turn may require multi-national collaboration to fund, design and deploy.

Recommendations for the UK

8. At the close of the session, you offered a chance to make recommendations for the UK to take advantage of the opportunities that the opening of the arctic may bring. Once again, time pressures restricted the chance to respond in full but I offer my opinions below.

a. EU Point of Entry. During the session I suggested that the UK develop the port and transport infrastructure to provide an attractive point of entry into the EU rather than let other ports (e.g. Rotterdam) take advantage of such traffic. I proposed that a port in the northeast of England be developed and that Hull would be, perhaps, a suitable location. However, Hull was only an off-the-cuff suggestion and I would suggest that Newcastle might make a more logical place to make such an investment.

i. **Recommendation:** Conduct a study to identify the opportunities, costs and benefits developing such an EU point of entry within the northeast of England (or southeast of Scotland) and which, if any, existing ports would create the greatest benefit for the UK.

b. Data Gathering Systems. There is a significant need for high quality observed hydrographic, oceanographic and meteorological data and for such data to be process for climate and weather forecasting models. The UKHO and UKMO are ideally placed to take advantage of such data to provide world class forecasting and charting services that would also provide significant income streams for the UK.

i. **Recommendation:** Encourage the development of data gathering systems capable of persistent autonomous observing by enhancing the TSB supported research streams.

ii. **Recommendation:** Support the UKMO in developing short and medium term forecasting services for weather and ice products across the region.

iii. **Recommendation:** Work with the MoD and UKHO to gather hydrographic data across the region both commercially in conjunction with the relevant coastal states and using MDG assets for militarily and policing services.

c. Maritime Services. London has been central to the provision of maritime service (insurance, brokerage, financing etc.) for many years but has recently been sliding down the international table, losing out to other, more attractive centres (such as Singapore).
i. **Recommendation**: Work with the financial services authorities and multinational companies or organisations to provide a more attractive environment that will encourage the maritime service industry to stay or return to the UK.

C.R. Manson
Director
Manson Oceanographic Consultancy

*30th July 2014*