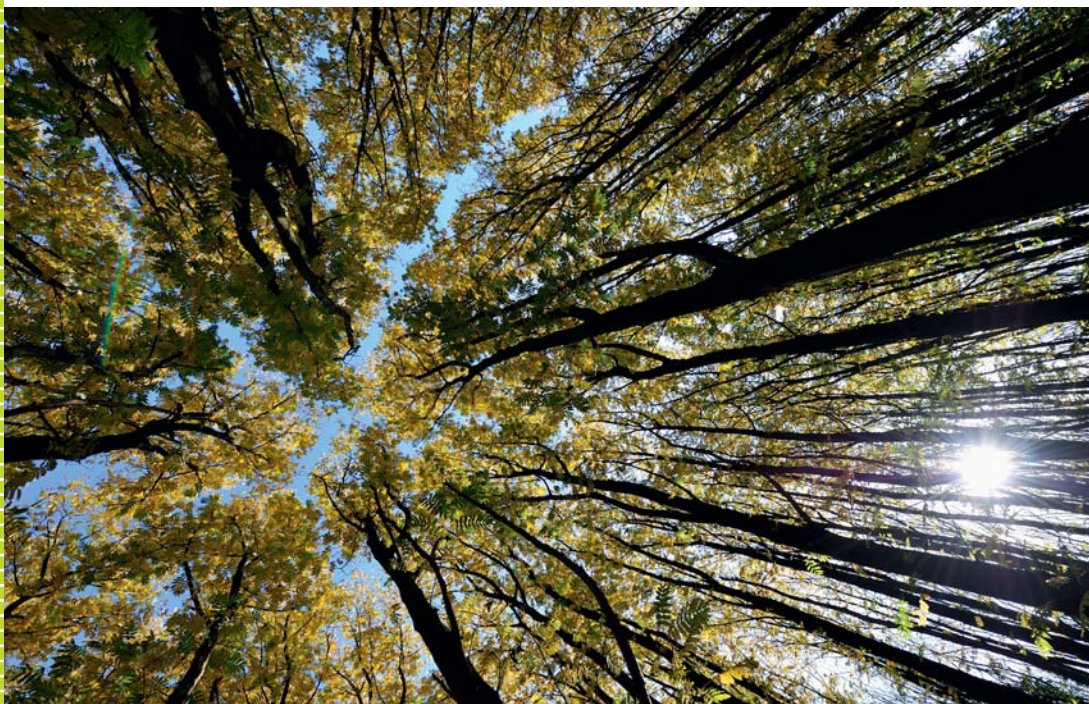


Cruise Gateway North Sea

Incorporating sustainability in the branding strategy
for cruising in the NSR

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Co-operation creates co-creation

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By Ossip van Duivenbode

City centre by night

TABLE OF CONTENTS

I. INTRODUCTION..... 8

 I.1. WHAT IS SUSTAINABILITY? 8

 I.2. SUSTAINABILITY FOR NSR CRUISE BRANDING PURPOSES 10

 I.2.1. Relative importance of sustainability for cruise tourists 10

 I.2.2. Sustainable communication 11

 I.3. HOW TO IMPROVE THE SUSTAINABILITY IMAGE? 12

II. DRIVERS FOR THE SUSTAINABILITY IMAGE OF THE NSR..... 17

 II.1. EXAMPLES OF INITIATIVES 18

 II.1.1. International initiatives 19

 II.1.2. National level initiatives 20

 II.1.3. Regional and local initiatives 27

 II.1.4. (Cruise) port initiatives and measures 36

 II.2. PREVENT CARRIAGE CAPACITY PROBLEMS FOR LOCAL SOCIETIES AND ENVIRONMENT 44

 II.3. OTHER CONSIDERATIONS FOR SUSTAINABILITY 46

 II.3.1. Use sustainable initiatives for shore visits 46

 II.3.2. Stimulate cruise lines to improve sustainability 46

III. RECOMMENDATIONS..... 47

IV. ADDITIONAL DESK RESEARCH 51



By Rotterdam Marketing

Entrance Leuvenhaven

LIST OF FIGURES AND TABLES

Figure 1: Gains and impact of sustainability efforts 13

Figure 2: Planned change in energy mix of Germany 23

Figure 3: Offshore wind energy capacity per sea basin in EU and capacity
worldwide 24

Figure 4: Hydropower 25



Reclaimed land, Maasvlakte 2

I. INTRODUCTION

One of Cruise Gateway's work packages is 'Cruise and sustainability'. For this work package, *Policy Research* has been invited to provide examples of good practices regarding sustainability in the North Sea Region (NSR). This report presents the results of this study¹. In addition, *Policy Research* provides background information and makes a number of recommendations, which can support member ports in the NSR in their consideration on how to use sustainability initiatives and achievements for branding purposes.

I.1. WHAT IS SUSTAINABILITY?

Sustainability is derived from the verb sustain, which means to maintain or endure. According to the Brundtland Commission (1987), sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainability concept

Sustainability consists of three main elements:

- Environment;
- Society;
- Economy.

For cruise calls in a destination, this means:

- Environment: the environmental impact of cruise ships (and the activities that take place on the ship while a ship is in the port), cruise port facilities and tourist visits;
- Society: the impacts on society of cruise tourism resulting from shore excursions (e.g. transportation to and from excursions may lead to

1 The collection of these examples is primarily based on internet desk research. Some examples have been provided through a questionnaire and e-mail feedback.



19 original windmills (UNESCO) – Kinderdijk 1738/40



By Mladen Pikulic

Windmills 2013

- congestion and/or overcrowding, which negatively impacts local society);
- Economy: fair economic returns to local business and families; cruise tourism provides ample perspective to contribute regional (economic) development of regional and local economies.

Sustainability image concept

The sustainability *image* of cruising can be defined by the extent cruise tourists sense that their personal leisure and travel activities (on board and off board) during cruises are managed in a sustainable and environmentally friendly way. This concept is important since there is a growing awareness of potential cruise tourists and other stakeholders that the positive impacts of tourism can only be sustained if the potential negative impacts of tourism can be minimised. Tourists increasingly value sustainability and the concept of taking responsibility for their actions while enjoying themselves.

I.2. SUSTAINABILITY FOR NSR CRUISE BRANDING PURPOSES

In this paragraph suggestions are presented on how to approach the integration of sustainability in the branding strategy of cruise ports.

I.2.1. RELATIVE IMPORTANCE OF SUSTAINABILITY FOR CRUISE TOURISTS

Determinants of attractiveness

Roughly four main determinants influence the attractiveness of a cruise tourism destination:

- ***Tourist attractiveness*** of the destination; how attractive is a visit to a city or region (e.g. beautiful historic centre)? Also relevant here is to what extent the destination is known.
- ***Accessibility*** of the destination. Are the excursions easy to reach and is the port's accessibility fit for homeport traffic (e.g. is the port near an airport

with air lifts to the major cruise markets and is it close to a train station with hinterland connections)?

- **Port facilities.** Can the port facilitate the ships in the right way (at the right price) and do passengers feel safe and comfortable in the port area?
- **Geographical location** of the port: is the port well positioned considering the location of other cruise ports, i.e. can the port be incorporated in one or more attractive itineraries?²

Importance of sustainability for a cruise tourist

As becomes clear from the above, sustainability is not considered to be one of the key determinants for the average cruise passenger to purchase a cruise. The average cruise passenger primarily bases his or her cruise purchase on the tourist attractiveness of the destinations in the itinerary and the value for money. Therefore, using sustainability as a key element of the branding strategy will hardly affect the choice for a cruise. Even cruise passengers who would *appreciate* a sustainable cruise will, as of yet, not see sustainability as a key determinant. However, the increasing number of potential cruise tourists who appreciate a ‘sustainability layer’ over their cruise can enjoy a better cruise experience, which results in higher ratings of the cruise. By increasing exposure to the ample sustainability initiatives and measures taken by cruise regions, cruise lines, tour operators, ports and other stakeholders, cruise tourists will have a more positive attitude towards the destinations in the NSR.

I.2.2. SUSTAINABLE COMMUNICATION

If a port develops a sustainability branding strategy, it is advised to use ‘sustainable communication’. No matter which element of sustainability is targeted (environment, society, economy), adequate communication of actions and results supports the effectiveness of the implementation of the

² Hinterland connections can also play a role here, as certain tourists ‘hop off’ in one port and ‘hop on’ in another port.

sustainability strategy. By applying adequate internal communication the internal stakeholders can be convinced of the benefits of the strategy, which helps to bring change. External communication is important to be able to reap the benefits of sustainability measures, i.e. creating a better image. If a port takes an important sustainability measure and does not communicate the positive effects to the external environment, the impact on the image of the port will hardly change (see also next paragraph). The Cruise Gateway North Sea project has integrated the approach of using the good initiatives already in place to strengthen its endeavour of phrasing possible sustainability measures and examples in a sustainability strategy.

I.3. HOW TO IMPROVE THE SUSTAINABILITY IMAGE?

Improving the sustainability image of cruise tourism ultimately aims for a better customer travel experience with regard to sustainability.

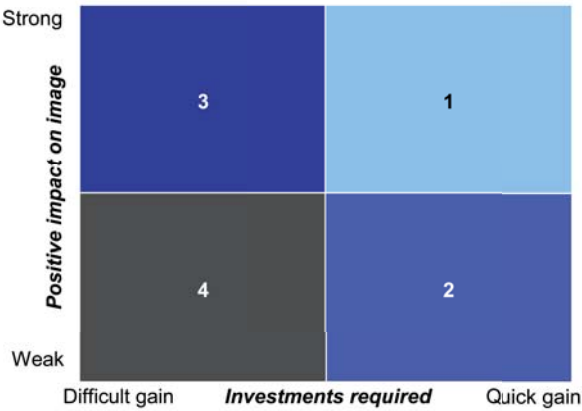
Improving the sustainability *image* is not the same as improving sustainability itself. Measures that are implemented in order to increase the sustainability of cruise tourism in the NSR, can have various impacts (strong impact and weak impact) on the sustainability image of cruise tourism and require different levels of investments. In other words: the cost-benefit of measures differs.

Exposure of measures can be realised by means of traditional marketing efforts, where the sustainability impact is communicated to the cruise tourist (one-way communication) or by directly *engaging* cruise tourists and inviting/encouraging them to experience sustainability measures. When tourists are actively involved in sustainability during their cruise they will develop a stronger relationship with the brand of sustainability which can make the cruise experience more attractive to tourists (experiential marketing³).

3 Experiential marketing is the art of creating an experience where the result is an emotional connection to a person, brand, product or idea.

‘Engaging’ and ‘participative’ marketing can create a bigger impact on the customer than traditional marketing (one-way promotion, looking at consumers as passive receivers of messages). A good example of this concept in the area of cruise tourism is the transportation of passengers by an electric taxi to the city centre. This can create a much stronger sustainability experience than reading about certain sustainability efforts in a leaflet. On the other hand, it requires little investment for a port to use examples that already exist through one-way promotion. Cruise ports should therefore aim to find the measures with the best cost-benefit outcomes. This outcome depends on the positive impact the measure has on the sustainability image and the investments that are required (see Figure 1).

Figure 1 : Gains and impact of sustainability efforts



Source: Policy Research Corporation

Ideally, a positive sustainability image can be reached by quick gains with a high positive impact on the customer experience. Hence, cruise ports should first try to identify and use those quick gains (category 1). They should also use quick gains that have a lower positive impact but still have a positive ‘cost-



By Rotterdam Marketing

City centre skyline – Cruise terminal

benefit' outcome due to the low investments required. It has to be noted that the gains need to be credible. Without credibility, the message will be weak and not convincing, which can even harm the image of the port (and the NSR cluster as a whole).

By communicating the right quick gains to the public, a sustainability image can be created in a relatively short term with limited investments. At the same time, cruise ports - as a cluster - need to show a credible intention to continuously improve the sustainability of cruising in the NSR. Actions are needed to put these intentions into practice. For the longer run, this may need investments in measures that can be categorised as more 'difficult gains'. By combining quick gains with credible intentions or actions to be taken by the (cruise) ports, people are likely to be convinced by the sustainability aims of the NSR.

A strong port-city relation strengthens the capability to implement measures. In the NSR, ports are generally strongly related to local governments and they collaborate in long term constructive partnerships. This approach allows for stakeholders to think wisely and act accordingly to achieve benefits for all involved (common interests):

- In a port, with positive impact outside the port (e.g. shore side electricity);
- Outside the port, with positive impact on the cruise tourists (e.g. electric transportation).

By cooperating adequately with local authorities on sustainability issues, ports in the NSR are able to connect their interests with those of the city/region and think about and develop credible measures collectively. A good example of how close cooperation between the parties involved can lead to credible measures for sustainability is the 'tourist cap' in Hardangerfjord. Here, the



By Forth Ports

parties involved have worked together to instate a fixed limit on the number of simultaneous visitors in the region to prevent the emergence of adverse societal and environmental effects.

II. DRIVERS FOR THE SUSTAINABILITY IMAGE OF THE NSR

Drivers for the sustainability image of the NSR can be found in existing measures that are being taken in the NSR. Measures can be found on the (inter)national and regional/local level, as well as on the level of the (cruise) port⁴.

The countries bordering the North Sea are environmentally conscious and - as a consequence - do invest heavily in improving the sustainability of the region. The measures and initiatives that are being taken to improve the sustainability of the NSR, can promote a picture of an area that is innovative and committed to improve its sustainability (which are quick gains). This study shows what kind of 'quick gains' are already present throughout the NSR, but also what kind of measures can be used as an inspiration to other ports.

In addition, ports can benefit from a specific competitive advantage of the NSR. Levels of overcrowding as a result of extreme popular cruise destinations are relatively low in the NSR compared to other cruise regions (e.g. the Mediterranean)⁵.

4 Cruise lines take sustainability measures as well, but these measures are not relevant for ports to promote.

5 The popularity of various cruise destinations in the NSR as a whole, is still relatively limited. This implicates that the impact of cruises on local societies and the local environment is relatively low compared to more popular cruise areas. For those destinations where problems do emerge, the strong relation between port and local authorities and their consciousness about sustainability can help to find solutions for the issues.

Consequently, the three main drivers of the promotion of the sustainability of the NSR by cruise ports are identified as:

1. At the international, national and local level in the NSR, initiatives have taken place and an increasing number of new initiatives and measures are taking place to enhance the sustainability of the area;
2. At port level, port authorities (including cruise ports) in the NSR are very active to improve the sustainability of port activities in the NSR;
3. Cruise destinations in the total NSR are not primarily mass tourism destinations. The adverse effect of cruise tourism overcrowding in destinations is in general not an issue in the NSR. This is a benefit over other sea areas in the world. Where issues do emerge, the excellent port-city relations could resolve the issues.

Ports could use these drivers to convey a message of an area that is passionate about increasing the sustainability of the North Sea and the countries surrounding it.

This chapter starts with listing a selection of sustainability initiatives and measures at the inter-national, national and local (city) level. Subsequently, relevant port initiatives and measures related to sustainability in the NSR are mapped. This inventory includes specific measures related to cruise tourism. Finally, examples related to the third driver of the sustainability image (the impact of onshore visits) are given.

II.1. EXAMPLES OF INITIATIVES

This section presents examples of several initiatives (on international, national, regional/local and port level) that can support the image of the NSR as an innovative, environment-conscious area⁶.

II.1.1. INTERNATIONAL INITIATIVES

International initiatives mostly relate to policies that focus on strategic, long term objectives and do not involve concrete and tangible measures. However, these initiatives can contribute to the image of an area that is committed to improve sustainability.

The leaders of the EU Member States committed themselves in 2010 to setting the following target for 2020: “Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.” The European Commission also developed a strategy with the end to accomplish this target. In line with the EU Strategy, individual Member States developed long term plans. As a consequence, all countries in the NSR (also Norway) have established sustainable development strategies.

At EU-level also targets are set for reducing climate change. The EU’s strategy for tackling climate change focuses on three targets for 2020: slashing greenhouse emissions by 20% (compared to 1990), drawing 20% of energy from renewable sources and cutting energy use by 20%⁷.

In the Bergen Declaration of 2002, the Ministers of the countries bordering the North Sea⁸ agreed to implement an ecosystem approach by identifying and taking action on influences which are critical to the health of the North Sea ecosystem. This international collaboration illustrates the commitment of the countries involved to improve sustainability in the NSR. Among others, they

6 Please note that examples about the effects of initiatives on the state of the environment cannot be made. It is - within the scope of this assignment - not possible to relate initiatives to an improved environment.

7 <http://ec.europa.eu/europe2020/>

8 Belgium, Denmark, France, Germany, the Netherlands, Norway, Switzerland and Sweden.

agreed to improve the network of Marine Protected Areas (MPAs)⁹ as one of the actions to improve the conservation and restoration of species and habitats in the North Sea. Other topics in the declaration are sustainable fishing, reducing the environmental impact of human activities, investing in renewables and international cooperation.

Another stage for international cooperation in the North Sea is OSPAR. The OSPAR Convention is the current legal instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic, to which the North Sea belongs.

An important measure that has been taken is the inclusion in (2005) enforcing of (2007) the North Sea in the Sulphur Emission Control Areas (SECAs). A SECA is established to reduce the air emissions of ships. Within this area, ships are required to limit their air emissions, either by using fuel with lower sulphur levels or by using technologies to filter sulphur emissions from the ships' engines. Such restrictions show a credible measure of policymakers to improve sustainability. Worldwide there are only five of these emission control areas: Baltic Sea and North Sea (SECA), North American east coast, North American west coast and Hawaii (ECAs). From January 2014 an ECA for the US Caribbean islands (Puerto Rico and Virgin islands) will come into force.

II.1.2. NATIONAL LEVEL INITIATIVES

This section presents several relevant examples on which countries in the NSR work to improve the sustainability inside and outside their country. Successively, the examples are listed according to the following sustainability topics: Maritime Spatial Planning, Renewable Energy and Water Treatment.

Maritime Spatial Planning

At the national level countries bordering the North Sea have made strong



By Mladen Pikulic

progress in the development of 'maritime (marine) spatial planning' (MSP). MSP is a process that brings together multiple users of the sea (amongst others: industry, government, energy and recreation) to make informed and coordinated decisions about where (and when) human activities take place at sea in order to use marine resources sustainably. Multiple countries bordering the North Sea have developed advanced MSP plans to enhance the current and future sustainable use of the North Sea. In the Bergen Declaration, already NSR countries committed themselves to improve international cooperation in the field of MSP. One of the examples that show the good international relations is that these countries agreed on the designation of their Exclusive Economic Zone (EEZ). In other sea areas, this is certainly not the case.

Renewable energy

The countries in the NSR take measures to increase the generation of renewable energy while reducing the generation of conventional energy (especially coal). As explained before, at the wider EU level, targets for 2020 have been set to reduce climate change¹⁰. Through National Renewable Energy Action Plans (NREAPs), the EU Member States have to explain their (planned) actions to reach their renewable energy targets by 2020. The individual countries bordering the North Sea, are dedicated to increase the production of green energy to reduce emissions and consequently mitigate climate change.

Germany has made an 'Energiewende', among others to fight climate change and reduce the risks of nuclear power. Some of the goals of this highly

9 In order to protect the marine environment, many Marine Protected Areas (MPAs) have been established. In these MPAs, human (recreational or commercial) activities are constrained or even prohibited. In the European Union, these MPAs fall under the wider biodiversity protection network of Natura 2000. Natura 2000 is an EU-wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats.

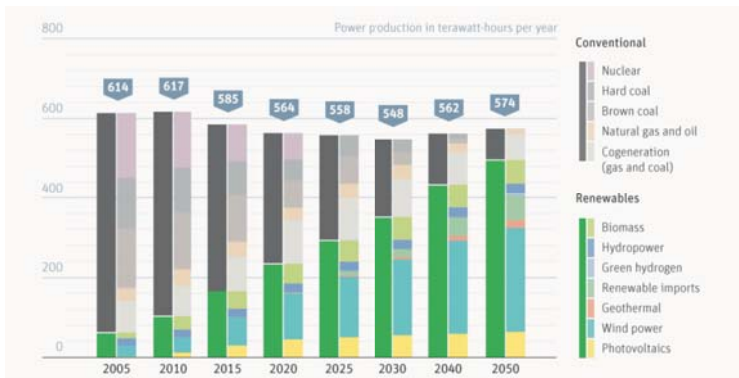
10 The main targets for 2020 are: reduce greenhouse emissions by 20%, draw 20% of energy from renewable sources and cut energy use by 20 % (source: <http://ec.europa.eu/>)

ambitious energy transition programme are:

- greenhouse gas reductions: 80–95% reduction by 2050;
- renewable energy targets: 60% share by 2050;
- energy efficiency: electricity efficiency up by 50% by 2050;
- an associated research and development drive.

The planned development of the energy transition is illustrated in *Figure 2*. It shows especially a strong planned increase in wind energy, but also other renewables are planned to increase significantly.

Figure 2 : Planned change in energy mix of Germany



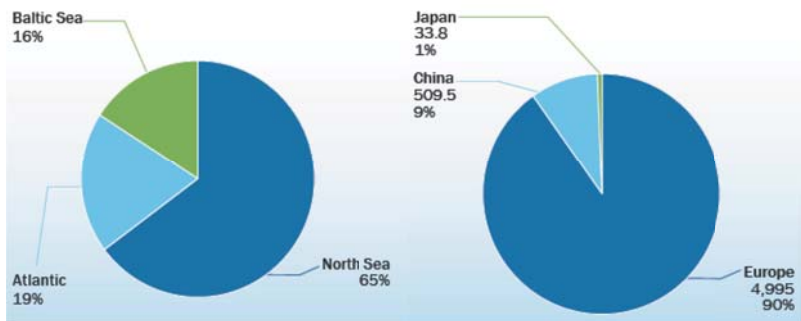
Source: www.energytransition.de

Other countries surrounding the NSR are investing intensively in renewables as well, also primarily in wind energy. Denmark, for example, has per capita the highest wind power generation of Europe. Wind energy makes up 22% of the total electricity generation in Denmark.

Countries bordering the NSR have also invested in developing offshore wind farms. In *Figure 3* the installed capacity in Europe per sea basin is presented.

The figure illustrates the strong position of the North Sea in European offshore wind energy generation. Europe has by far developed the most offshore wind capacity (and most of this capacity comes from the North Sea). Especially the United Kingdom and Denmark have invested heavily in offshore wind capacity.

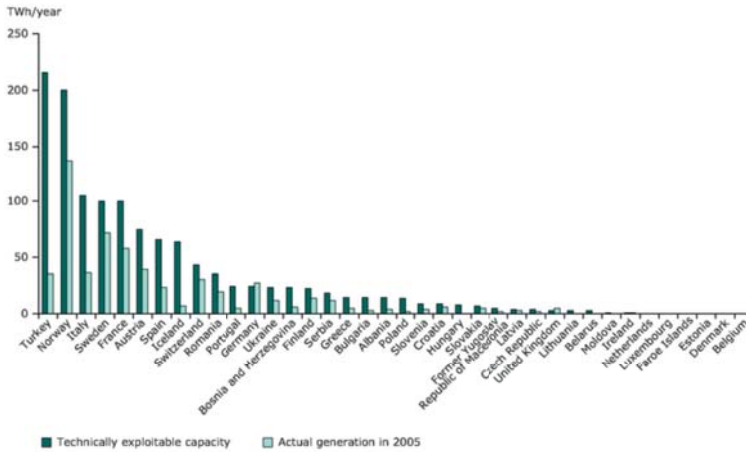
Figure 3 : Offshore wind energy capacity per sea basin in EU and capacity worldwide



Source : EWEA, *European offshore statistics 2012*

Next to before mentioned examples of renewable energy, hydro energy or hydropower is a form of generating energy from height differences in water levels (usually by the construction of a dam or by the use of a natural waterfall). Most of the countries in the NSR do not have proper natural conditions for generating hydropower efficiently. Norway and Sweden however do and in practice these countries also exploit that potential to a large extent (Figure 4).

Figure 4 : Hydropower



Source : <http://www.eea.europa.eu/>

In most European countries biomass has the biggest share in the renewable mix. The scale of other renewables in the energy mix, such as solar power or thermal energy, is relatively limited in the NSR region compared to biomass, hydropower (in Norway and Sweden) and wind energy. However, the countries do invest in the development of capacity of those technologies. For instance, governments give subsidies to stimulate the use of solar panels.

As the previous examples explained, the NSR is working intensively on improving the generation of renewable energy to meet the EU targets for 2020 and/or national targets.

Electric transportation

Together with the efforts to increase the production of renewable energy, initiatives have been started to reduce the emissions of transportation by powering transportation vehicles with electricity.

Electric vehicles (including hybrid forms) have experienced strong growth during the past few years, especially cars. The Netherlands is at the forefront in stimulating and facilitating the use of electric powered cars. The Netherlands is internationally recognised and seen as a test case for the world concerning the roll-out of electric cars. Because of low taxes on electric cars, high taxes on fuel and heavy investments in a network of charging locations, the attractiveness of electric cars is high in the Netherlands. Another country in the NSR that experienced rapidly expanding electric car use is Norway. Norway currently has the highest electric vehicle market penetration rate in the world. In other countries in the NSR the number of electric vehicles has developed at a continuously rising rate.

Water treatment

In general, the countries in the NSR have advanced sewage filtering systems. Compared to other sea areas, sewage water in the NSR region needs to be treated carefully before it is discharged in rivers and the sea. In less developed areas, water is often discharged without proper treatment, also by industrial activities. The strong environmental requirements and controls in the NSR have resulted in improved water quality in the sea and rivers. In the Maas and Rhine rivers for example, the improved water quality has led to the return and increase of the salmon population¹¹.

Another example of advanced systems concerning water treatment is that tap water in the NSR is of a high quality and therefore drinkable in the entire region.

¹¹ <http://www.compendiumvoordeleefomgeving.nl/>

II.1.3. REGIONAL AND LOCAL INITIATIVES

Cities in the NSR region have introduced (credible) sustainability policies and action plans with visible effects in the cities. This report will show several examples of (a selection of) cities that are committed to improve the sustainability of their city.

Several big cities that border the North Sea are part of the worldwide C40 network of cities¹². These cities are Amsterdam, Copenhagen, London, Oslo and Rotterdam.

Example efforts to increase sustainability of the cities Oslo, Copenhagen, Rotterdam and London are presented in the next sections. Also relevant examples of Hamburg, Gothenburg and Edinburgh and other cities located close to the North Sea, are presented in this paragraph.

Oslo

Oslo is planning to cut CO₂ emissions by 2030 with 50% (compared to 1990). This will bring the already low emissions (2.3 tons of CO₂ per capita) to well below 1 ton per capita in this timeframe¹³. By 2050 Oslo aims to be carbon neutral. Because Oslo is already powered by hydro power, the city will meet its reduction targets through policies that include:

- Energy efficiency and use of local energy resources;
- CO₂ free heating;
- A long term transition towards CO₂ free transport.

An interesting initiative that increases energy efficiency concerns street lighting.

12 C40 is a network of cities around the world taking action to reduce greenhouse gas emissions. C40 works with participating cities to address climate risks and impacts locally and globally. C40 is committed to implementing meaningful and sustainable climate-related actions locally that will help address climate change globally.

13 Source: www.c40cities.org

According to Oslo's mayor, the most advanced intelligent street lighting in the world has been built and tested in Oslo. The project 'Intelligent street lighting' has demonstrated that energy consumed by street lighting can be reduced by as much as 70 percent. Each lamp can be individually dimmed according to traffic and climatic conditions etc. Another measure that has been taken is to replace all oil heaters with renewable energy systems in municipal buildings by 2011.

From 2013 food waste is treated in the world's largest treatment plant, producing bio methane for buses and bio fertilizer for around 1,000 medium-sized farms. The waste is sorted in the world's largest optical sorting facility.

Transport emissions remain a challenge with regard to both CO₂ emissions and local air quality. The following measures are taken to meet this challenge:

- Creating infrastructure for electric and hydrogen-powered mobility: Oslo is aspiring to remain the Electric Vehicle Capital of the world. Electric cars are given free passage through Oslo's toll (ring) road and these drivers are allowed to use lanes otherwise reserved for public transport. Oslo has installed more than 400 parking stations with free charging. In 2013 the city will install another 200 charging points;
- Turning the public transport carbon neutral. The goal is to make public transport carbon neutral by 2020. One of the main solutions is to use biogas, produced from wastewater sludge and organic waste, in buses. Oslo is furthermore contributing to the development of hybrid fuel cell buses through the HyNor pilot project, which is testing 5 hybrid fuel cell buses in regular traffic conditions. Oslo demands carbon-free solutions even for the more environmentally friendly transport modes;
- Public transport financed by road charging: the road charging scheme is contributing to lower growth in car use, and generating revenues to

fund public transport infrastructure investment and operational costs. The number of public transport journeys has grown by approximately 35 percent from 2000 to 2011; public transport in Oslo now comprises 45 percent of all motorised transport. With more citizens walking, cycling or taking public transport, 64 percent of all travels in the city are environmentally friendly.

Copenhagen

Copenhagen drafted a document called 'Solutions for sustainable cities' in which 8 measures are explained that improved the sustainability of the city, which could be useful for other cities to implement. Some of these measures are described below.

Cycling is considered a sustainable means of transportation. According to the strategy: "Besides providing a more liveable city, reduced carbon emissions and air pollution in the city, the shift from cars to bicycles also saves time and money." In order to increase cycling, the city has improved the bicycle lanes by among others creating a connected network of lanes and introducing "bicycle super highways." Other cities are stimulating the usage of bicycles as well. In London for example, a Cycling Commissioner has been appointed by the mayor, who is tasked with making cycling a safer and more popular mode of transport. The Netherlands has a bicycle tradition which has resulted in well developed networks of bicycle lanes.

Another policy of Copenhagen was to completely modernise the sewage system in the old port area. As a result, the water quality in this area improved, and the City of Copenhagen was even able to open public harbour baths.

With regard to waste, Copenhagen sends only 2% of waste to landfills, which

is 20 times less compared to 1988. By separating waste, more waste is being recycled. In addition, waste is incinerated to generate electricity and heat. With regard to the energy sources for the heating system of Copenhagen, the aim of Copenhagen is to replace all coal-based energy by biomass energy.

These examples, and the other examples in the report, show Copenhagen is very active in improving its sustainability. Between 2005 and 2011 CO₂ emissions were reduced by more than 20%. Copenhagen aims to become a carbon neutral city in 2025, which should make Copenhagen the first carbon neutral capital in the world.

Rotterdam

In Rotterdam the so called Rotterdam Climate Initiative (RCI) has been initiated. This programme aims to reduce CO₂ emissions by 50% in 2025 (compared to 1990), prepare for climate change and strengthen the Rotterdam economy. Several themes have been developed to achieve those goals. In the 'Rotterdam Programme on Sustainability and Climate Change 2010-2014' the key tasks for the RCI are presented, as well as numerous measures that should contribute to executing these tasks.

The Rotterdam petrochemical and energy cluster is extremely important for the economy of both Rotterdam and the Netherlands as a whole. At the same time, these activities are CO₂-intensive and contribute significantly to the total CO₂ emissions in the Netherlands. According the RCI, by saving energy, making production processes more efficient and by setting up an infrastructure for the exchange of residual heat and CO₂, it is possible to continue production in a responsible way. Another option that is discussed is carbon capture and storage (CCS). CCS should for a large part ensure the reduction of air emissions. At the same time, sustainable forms of energy generation and industrial activities

are being developed. Key methods for energy generation are biomass, wind and solar energy. Research is being carried out into the options for geothermal energy. Other examples of initiatives to meet the RCI targets are stimulating sustainable mobility and transport (e.g. use more public transportation and electric transportation) and improving the sustainability of buildings (e.g. agreement with hotels to apply for Greenkey certification).

London

‘Delivering London’s Energy Future’ is the climate change mitigation and energy strategy for London. It sets out the Mayor’s projects and programmes to improve quality of life for Londoners, helping to deliver a cleaner, greener, and more sustainable city, by:

- Cutting carbon: limiting climate change by reducing London’s carbon dioxide (CO₂) emissions by 60% on 1990 levels by 2025;
- Saving money: increasing energy efficiency to save Londoners money on their fuel bills;
- Creating jobs: driving forward the low carbon economy in London to generate investment and create new ‘green collar’ jobs.

One of the measures to reach the 60% reduction of CO₂ by 2025 is the congestion charging scheme. London is the largest city to have adopted a central area congestion charging scheme. It has led to a 20% reduction in four-wheeled traffic within the charging zone during charging hours, cutting an estimated 40-50 million litres of vehicle fuel consumption inside the zone and a total 100 000 tons CO₂ emissions annually across London. The charge raises £122 million annually which is then spent on improving transport, including providing more buses, improving road safety and implementing energy efficiency in transport. The zone was further extended in February 2007, doubling its size, with initial estimates showing a 13% reduction in

traffic in the new area covered. Monitoring of this extended zone has not yet been completed.

One of the programmes of 'Delivering London's Energy Future' is retrofitting public buildings. Savings could be significant as 10% of the footprint comes from these buildings. The programme is called RE:FIT. The aim is to apply the RE:FIT model across at least 40% of public sector buildings in London over the coming years. This would retrofit 11 million m² bringing a reduction in CO₂ emissions of over 2.5 million tonnes per year.

Hamburg

In 2011 Hamburg was the 'European Green Capital'. The title honours cities with excellent performance in environmental protection and climate change mitigation. In the field of climate and energy, the plan of Hamburg is to reduce CO₂ emissions by 40% by 2020 and by 80% by 2050 (compared to 1990). The package of measures to increase sustainability consists among other things of¹⁴:

- Improve sustainable mobility by the expansion of public transport, including hybrid buses. Eco-taxis are present in Hamburg, and the city also invested in stimulating the use of electric cars. Furthermore, the city is focusing on environmentally friendly bicycle traffic. The cycling network will be extended and more city bike stations will be established. A city bike rental system has also been launched;
- Improve the energy efficiency of buildings. Raise the environmental protection standards in public buildings so that they are based on the 'passive house' standard. This passive house standard (Passivhaus in German) is a standard for energy efficiency of houses. These houses require little energy for heating and cooling. The urban housing in Hamburg will

14 <http://sustainablecitiescollective.com/>

gradually concentrate on such 'passive houses';

- Invest in renewable energy. The performance of wind turbines in Hamburg is planned to rise. Furthermore, the introduction of a programme for geothermal energy is being examined. The municipal energy supply company Hamburg Energie installs additional megawatts of solar power on the roofs of Hamburg buildings. Also a photovoltaic system (solar energy) was built on a former landfill. The production of biogas from organic waste is to be optimized and expanded;
- Parks, playgrounds, sports fields, allotments, and cemeteries will be linked to a green network that makes it possible to move between the city and countryside on separated walking and bicycle paths, undisturbed by traffic;
- The city is utilising former harbour and industrial areas within its boundaries to transform them into new districts for living and working. The best example is the HafenCity, the largest urban redevelopment project in Europe;
- In noise prevention, Hamburg is planning to cover a huge section of an important highway. The four kilometre long cover will carry green areas with parks, small gardens and paths, connecting neighbourhoods now separated by the highway;
- Increase the (sorted) collection of waste.

Gothenburg

Gothenburg has experienced a big change in its sustainability during recent years. Once named 'the forecourt to hell', due to heavy traffic and poor air quality, a conscious effort was initiated to implement rectification measures, including initiatives to improve the city's air quality¹⁵. One of the latest measures is the introduction of a congestion charge system in January 2013, to reduce congestion in the city centre.

Other sustainability measures recently taken by Gothenburg are¹⁶:

- In Gothenburg 75% of the hotels are green accredited and most other hotels are working with an environmental plan as well as using environmentally adapted items;
- The extensive public transportation system is actively taking part in the development of environmentally friendly solutions. Airport coaches are changing (up to 100%) to renewable fuels. Today, all coaches have a particle filter for the cleaning of discharges. All new city fleet vehicles are of the highest environmental class and in 2012 several new rechargeable electric hybrid buses were tested in the city;
- There are 335 recycling stations where newspapers, glass, cardboard, metal, plastics and batteries can be recycled. Waste management is available at 5 transfer stations, 17 civic amenity sites and waste collection vehicles (where dangerous goods can be disposed of);
- In April 2011 Gothenburg had 184 climate friendly passive houses (ultra-low energy buildings) and apartments;
- A comprehensive district heating and cooling system has meant that less than one percent of Gothenburg's heating or cooling is generated with the use of oil;
- Gothenburg has one of the world's largest producers of biogas, which is injected into the natural gas grid;
- The refineries in Gothenburg are the most energy-efficient in the world.

Furthermore, the city has developed a vision/strategy towards 2021 when the city will exist 400 years. According to the document Gotheborg is taking the lead in sustainable city development. In this document, several sustainability measures are presented to accomplish this.

¹⁵ Source: www.businessregiongotenborg.com

¹⁶ Source: www.goteborg.corporate.com

The efforts of Gothenburg have led to the appointment as Europe's best Eco Tourism Destination in 2011.

Edinburgh

In Edinburgh a strategy (Sustainable Edinburgh 2020) and an action plan has been drafted to meet the objectives derived from the Edinburgh city vision: in 2020 Edinburgh will be a low carbon, resource efficient city, delivering a resilient local economy and vibrant flourishing communities in a rich natural setting. With regard to climate actions, the following targets have been set:

- Reduced carbon emissions by over 40% across the city;
- More efficient energy consumption across all sectors by at least 12%;
- More renewable energy with renewable energy technologies contributing to at least 40% of energy consumed in the city;
- More low carbon transport using alternative technologies for transporting people and goods around the city;
- Adapted to the unavoidable impacts of climate change in partnership with key stakeholder and local communities;
- Increase micro generation capacity to 10%.

Next to actions being taken to reduce the environmental impact, actions are also taken by Edinburgh to improve the society and economy element of sustainability.

II.1.4. (CRUISE) PORT INITIATIVES AND MEASURES

At the port level many initiatives can be found that improve the sustainability of ports, and in some cases also specifically enhance the sustainability of cruise tourism. Port initiatives and measures concerning sustainability are categorised in the following themes: curb emissions of ships and the port's suppliers, curb emissions of port facilities and equipment, waste reception management and meet standards of environmental certificates.

Curb emissions of ships & suppliers

Reducing emissions in ports is important to mitigate climate impact and as a consequence, to improve sustainability. Measures to cut emissions are often part of a broader city plan to cut emissions. Several initiatives and measures to cut emissions for ships and suppliers are presented below.

Environmental Ship Index

The Environmental Ship Index (ESI) measures a ship's emissions based on the amount of nitrogen oxide, sulphur oxide, particulate matter and greenhouse gas it releases. It gives an indication of the environmental performance of ships.

The ESI is used to introduce incentives by ports to motivate ship operators to cut emissions; ships are rewarded for meeting high environmental standards. For example, since the Port Authority of Antwerp introduced the ESI in 2011, all seagoing ships with an ESI score of more than 31 are granted a 10% discount on tonnage dues. Also the Port Authorities of Hamburg and Gothenburg introduced a discount on the port charge for environmentally friendly ships based on this index.

Other ports in the NSR that are involved in this project are Rotterdam (project leader), Amsterdam and Bremen/Bremerhaven. In total 13 ports across the world use this index to curb emissions.

On-Shore Power

On-shore power is the provision of electrical power to a ship at berth while its main and/or auxiliary engines are turned off. When berthed, ships still require a large amount of electricity to support onboard activities. In this way ships' operations can proceed uninterrupted, while eliminating negative side-effects of onboard power generation in the form of air emissions (and to a lesser extent noise).

In the ports of Antwerp, Amsterdam and Rotterdam, on-shore power is available for inland vessels (including river cruise ships in Amsterdam). In Antwerp on-shore power is also provided for seagoing ships. In the port of Gothenburg, all cruise ship berths are prepared for shore side power supply and if a cruise line shows an interest in shore side power supply and makes the necessary onboard investment, the Port of Gothenburg can offer connection within 12 months. The Port of Gothenburg was also the first port in the world to offer on-shore power supply at high voltage for cargo vessels in the year 2000. The Hamburg government plans to equip one terminal (Hamburg Cruise Center Altona) with shore side electricity (as from 2015).

In other ports, the authorities have taken actions to prepare and provide on-shore power in the near future. The port of Kiel has the ambition to provide on-shore power from 2014. The port authority of Zeebrugge has launched a study to investigate whether or not it is technically and financially interesting to install on-shore power supply facilities on the quays and on ships.

Stimulate supply and use of Liquefied Natural Gas and other cleaner fuels

Liquefied Natural Gas (LNG) is a cleaner and cheaper alternative for fuels that are currently used for transport. In the port of Rotterdam, the first import terminal of The Netherlands has been introduced for storing LNG. The ports of Antwerp and Gothenburg are also working towards LNG bunkering options.

In Gothenburg, the use of cleaner fuels is encouraged by applying lower tariffs to ships making use of those cleaner fuels. During 2011-2012, the Port of Gothenburg has run a campaign to encourage shipping lines to switch to cleaner fuel while in the port area. Vessels that have a maximum of 0.1% sulphur in the fuel while in the port area can apply for financial compensation (shipping lines can receive up to SEK 250 000 per vessel).

Hamburg follows up serious plans from AIDA Cruises to construct a so called Power-Barge, which delivers LNG from the waterside to the ships. This should become applicable to the different cruise terminals and should become available from mid-2014 on.

Use local suppliers and supplies

The port of Dover favours local supplies where possible in order to reduce the environmental impact associated with transportation and also to stimulate the local social and economic elements of sustainability.

Curb emissions of port authority facilities & equipment

Emission reduction within the port can be reached by investing in the facilities and equipment of the port. Several examples are provided below.

Passenger terminals

The implementation of sustainability in passenger terminals is carried out by

improving energy efficiency, maintaining the use and reuse of water, and using renewable energy generation systems.

In the port terminals of Amsterdam and Portsmouth, thermal energy is used to equip the heating and cooling system. Saving energy on light is done by optimising the use of natural light in Copenhagen, and using LED as light sources and by movement detectors for light activation in Amsterdam. Savings on water are implemented by absorbing rain water to relieve the sewage system (Copenhagen), using water saving taps (Amsterdam), and flushing toilets by seawater (Portsmouth). Another example is the terminal of Kiel, which runs on sustainable energy by making use of water to generate hydropower. Other alternative energy methods that are implemented by terminals are insulation by a green roof and installed solar panels (Copenhagen) and natural air-conditioning provided by so-called wind catchers on the roof of the terminal (Portsmouth).

These examples show there are several terminals in the NSR which are actively deploying sustainability. These terminals can be seen as best practices for sustainability measures in passenger terminals.

Sustainable energy

Wind power is a frequently cited example of a renewable technology installed in ports to provide renewable power. Currently, in the port of Rotterdam windmills produce 150 megawatt of energy; the plan is to double this amount by 2020 and provide 350 thousand households with this kind of sustainable energy. In the port of Amsterdam there are windmills that provide electricity for around 40 thousand households. The biggest on-shore wind park of Belgium is being realized at the port of Antwerp, which will provide annual power consumption for almost 200 thousand households.

Next to the presence of windmills, the port of Amsterdam supports and encourages businesses to join the heating network that uses waste to generate energy, which is provided by one of the companies located at their port site. The port authority of Antwerp works together with several companies to study the feasibility of using residual heat for district heating as well as of concerting it to use it for electricity production, water production, industrial reuse and greenhouse horticulture.

Other emissions reducing initiatives or circumstances

Next to generating energy out of alternative methods, there are initiatives that result in fewer emissions. In Rotterdam, the port was the first in Europe to introduce a hybrid tug boat, which is environmentally friendly and fuel-saving. The system of this tugboat ensures that electric and diesel engines, generators and environmentally friendly batteries are controlled efficiently. In Helsingborg eco-driving has been introduced. Since 2009, the Port Authority of Hamburg has been using sulphur-free fuel for its own fleet of ships. The port authority of Copenhagen is aiming to cut the consumption of electricity and gas used for heating and lighting. In several buildings and warehouses motion detectors have been installed, which automatically turn the lights on and off in order to optimize electricity consumption. They have also installed particle filters in their work machines, which reduce emissions of particles, hydrocarbons and carbon monoxide by about 90 percent. In addition, Copenhagen has equipped quays with waste water reception facilities using elaborate systems to prevent odour. The facilities can be cleaned by using stored rain water and the system can service up to three vessels simultaneously.

In the port of Hamburg, cruise passengers can order a 'sustainable taxi', some cruise lines work with hydro buses for on-shore transportation and the

port offers several forklifts that run on electric power. The Port Authority of Hamburg is also strengthening the port railway as an environmentally friendly means of transportation as more than 30 percent of hinterland traffic is covered by the port railway.

Waste management

Ports are required by an EU Directive to facilitate waste reception for receiving solid waste and different kinds of liquid waste like oily bilge water and sewage. The interpretation of this Directive however, varies between ports in Europe. As a result, European ports apply different fee structures. Roughly, waste management fees can be based on a direct or indirect fee. An indirect fee means that the port authority will collect the fee regardless of delivery. When a ship enters the port, a port charge is applied and an indirect fee for waste reception is included. The indirect fee is normally calculated based on ship size and sometimes based on ship type. A direct waste fee is applied in cases where the payment is done directly between agents and waste operators. The indirect fee serves as an incentive for ships to deliver waste in the ports instead of discharging it out into the open sea (illegally).

A 100% indirect fee is applied for garbage waste (solid waste) in all the ports of the North Sea Region. Some variations of a 100% indirect fee on ship generated waste are present.

In Gothenburg, a 100% indirect fee on ship generated waste, like waste oil from machinery space, sewage and garbage, is applied. Reasonable amounts of waste are accepted within this fee for waste oil and sewage, whereas garbage is accepted without limitations.

The ports of Antwerp and Zeebrugge operate with a system where an indirect fee is collected as a deposit which can then be reclaimed by the ships when they deliver waste. This deposit serves as an incentive for waste delivery. In Bremerhaven, the indirect fee for waste oil needs to be paid directly by the ship to the waste operator, but a part or the full cost for waste collection can be claimed back based on a proof from the port authority. In the port of Amsterdam, the ship receives a 'discharge right' for discharge of garbage and liquid waste. The ship pays directly to the waste operator for the provided services, but a part or the full cost for waste delivery can be reclaimed, based on the discharge right. An extension on the direct fee can be found in the port of Le Havre, where a direct fee is applied to ships for delivering waste, but when ships leave the port, an indirect fee is applied according to ship size as a penalty for ships which did not deliver waste at the port waste facilities.

The examples described above show that ports try to encourage ships to discharge their waste in a sustainable way.

In some ports there are specific facilities for sorted waste disposal. As mentioned before waste is being used to generate energy in the port of Amsterdam and it is therefore of importance that waste is being sorted. The port of Newcastle has an internal recycling scheme for different types of materials and here again it is of importance that waste is sorted. In the port of Kiel, it is possible to deposit sorted solid waste for recycling. Also in the ports of Gothenburg and Copenhagen, vessels can leave sorted waste.

Certificates

A number of ports in the North Sea Region have received certain certificates for their activities to improve their sustainability.

Some of the ports are compliant to the ISO 14001 certification. The ISO 14001 standard sets out the criteria for an environmental management system. Applying the standard means a framework is applied to set up an effective environmental management system. The benefits of using ISO 14001 can include: reduced cost of waste management; savings in consumption of energy and materials; lower distribution costs; and improved corporate image among regulators, customers and the public. Some of the certified ports are Dover, Portsmouth, Lerwick, Zeebrugge, and Ronne.

There are also other kinds of certification. For example the previously mentioned Passenger Terminal of Amsterdam has a Golden Greenkey certificate, which is the international label for companies in tourism and leisure industries who are taking serious actions towards environmental protection. Another example is the owner of the Port of Liverpool, which is in the possession of the Carbon Trust Standard. This standard encourages good practice in carbon measurement, management and reduction by businesses and public sector organizations.

The Port of Portsmouth is working on receiving a BREEAM certification, which sets a standard for best practice in sustainable building design, construction and operation. It encourages designers, clients and others to think about low carbon and low impact design, minimizing the energy demands created by a building before considering energy efficiency and low carbon technologies.

The Port of Gothenburg received the award “Regional Environmental Protection Contribution” of Sustainable Shipping, which recognizes that the port has made the most significant regional contribution to the reduction and prevention of pollution of the ocean by vessels.

Other

Green Award

The Port of Rotterdam is home to the Green Award initiative. Green Award certifies ships that are extra clean and extra safe¹⁷. Ships with a Green Award certificate reap various financial and non-financial benefits. The idea behind the Green Award is to promote safe and environmentally friendly behaviour of ship and crew/management. By rewarding high safety and environmental standards in shipping, Green Award makes above standard ship operation economically more attractive. The Green Award certification scheme is open to oil tankers, chemical tankers and dry bulk carriers from 20 000 DWT and upwards, LNG carriers and inland navigation vessels and other fields may follow. The Green Award has been set up by the Port of Rotterdam and a Dutch ministry, but is now an independent organisation. Several ports in the Netherlands, including Rotterdam and Amsterdam participate in the Green Award scheme. Other ports in Europe and the rest of the world participate as well.

II.2. PREVENT CARRIAGE CAPACITY PROBLEMS FOR LOCAL SOCIETIES AND ENVIRONMENT

The previous paragraphs presented examples of the first two proposed drivers of sustainability. This paragraph discusses the third driver: socially sustainable cruising in the NSR.

The NSR is not yet a busy cruise region, which could be presented as an attractive aspect of cruising in the area. In certain very busy cruise destinations the inflow of cruise tourists has adverse consequences for the local population. Although these visits lead to economic benefits, the sustainability of cruise tourism in these destinations can be low as the 'society' element of sustainability is under pressure. Cruise tourists tend to move as a group when

17 www.greenaward.org

they visit a destination. Overcrowding caused by this behaviour can cause inconvenience and annoy local residents, causing the locals to alter their daily behaviour to avoid the central district while cruise ships are in port¹⁸. Next to the social aspect, too much visitors can also impact the environment in destinations with excursions in a fragile natural environment. So when the 'carriage capacity' of a destination is exceeded, negative effects will emerge, both for the cruise tourist (as the tourist also experiences congestion and overcrowding) and the local society and environment.

In general, destinations in the NSR are relatively large cities and cruise tourism in the NSR is relatively limited, which limits problems with the carriage capacity in destinations. Hence, the NSR could promote its relatively limited cruise traffic as part of its branding sustainability strategy. However, there are certain destinations in the NSR that do experience problems with their carriage capacity. By ensuring that the 'carriage capacity' for tourists in those destinations is not exceeded, cruise tourism in these destinations can be socially sustainable which can be presented as a benefit to the cruise passengers who visit. In Hardjangerfjord this approach has been followed. Here, the collaboration between the various stakeholders involved has resulted in such a measure. In order to prevent future negative impact on the environment and society, the number of cruise passengers that can visit Hardjangerfjord simultaneously is now capped at a certain level.

Other NSR cruise ports that may experience a negative impact on society and the environment because of the density of cruise tourism, could also commit themselves to taking measures to ensure avoidance of adverse social and environmental effects.

18 The socioeconomic impact of cruise tourism, C. Loper (2005)

II.3. OTHER CONSIDERATIONS FOR SUSTAINABILITY

For certain measures, ports cannot bring change on their own. They need to work together. In this paragraph these considerations are discussed briefly.

II.3.1. USE SUSTAINABLE INITIATIVES FOR SHORE VISITS

During shore excursions and the transportation from the ship to the excursion (and back), cruise passengers can experience the sustainability of the destination. With regard to transportation, options are to use efficient modes of transport (e.g. public transportation or private bus instead of taxi) or use environmental-friendly modes of transport (hybrid/electric taxis). Using sustainable technologies during the visits of cruise tourists is an effective way to curb the environmental impact of their presence whilst - at the same time - giving the cruise tourist an interactive experience of the sustainability initiatives taken by the destination ports.

Also, excursions could be introduced in which sustainability plays an important role. As excursions are arranged by tour operators (who are hired by cruise operators), cruise ports need to cooperate with cruise lines to work on measures to improve sustainability. In the end, the cruise line needs to give its approval for changing elements of the excursions. Cooperation with tour operators (after consent is given by the cruise line) will involve looking for opportunities to improve the sustainability of the excursions.

II.3.2. STIMULATE CRUISE LINES TO IMPROVE SUSTAINABILITY

When people go on a cruise, they spend most of the time on the cruise ship. That means the cruise operator should not contradict the sustainability image of the NSR cruise. Cruise operators have already taken measures to improve the environmental effects of their ships. For instance, ships have their own sewage treatment plants on board. This enables the re-use of this water and prevents

the discharge of untreated water. Another example is that the garbage bins allow the collection of sorted waste. These positive developments can be communicated to the cruise tourists.

For the cruise port, some sustainability measures depend on the cooperation of the cruise lines. For example, if the port would like to collect sorted solid waste, it would be necessary that cruise ships sort their solid waste beforehand. Ports should therefore interact closely with cruise lines. The example of Hamburg, where an environmental roundtable between the Hamburg Cruise Centre and the cruise lines has been set up, shows such initiatives are being taken.

Ports can introduce incentive schemes to stimulate cruise lines to be more sustainable. For example, by giving a discount on port fees in case the ship uses a less polluting fuel (as is being done in the ports of Hamburg and Gothenborg).

III. RECOMMENDATIONS

In order to use sustainability in the branding of the NSR as a cruise destination, the following recommendations are made.

- The primary objective of branding the unique sustainability image of NSR cruise ports should be to increase the customer's satisfaction with cruising in the NSR (cruise ratings should go up);
- Sustainability should be added as a layer over the cruise, providing passengers with information about sustainability initiatives and by giving them the option to experience sustainable solutions during their visit (e.g. use electric transportation). In some places there may even be potential to organise excursions to sustainable projects, but this is certainly no

requirement to create a sustainable image;

- The image of sustainability of the NSR should be built on the image of an area that is innovative and committed to improve its sustainability. Good examples throughout the area can provide backing support for this. Three drivers for the promotion are suggested:
 - NSR international, national and local level initiatives have taken place and are taking place to enhance the sustainability of the area, proving the NSR is an innovative and environment-conscious area aspiring the improvement of current and future sustainability;
 - At the port level, port authorities (including cruise ports) in the NSR are very active to improve the sustainability of port activities in the NSR;
 - Cruise destinations in the total NSR are not primarily mass tourism destinations. The adverse effect of cruise tourism overcrowding in destinations is in general not an issue in the NSR. This is a competitive benefit over other sea areas in the world.
- Cruise ports should communicate existing appealing sustainability initiatives of the destinations. These are quick gains with potentially a high impact on the sustainability image of the destination. High impact of measures on the customer experience relates strongly to the visibility of the measures. Quick gains with high impact can be ensured by communicating visible sustainability improvements that have been made and by investing in visible improvements that require small investments; Therefore, each port should make an inventory of appealing examples of what has been (or is being) done to improve sustainability and communicate these to the cruise passenger;
- The examples presented in this document already give an extensive overview of initiatives and measures, which can be used as an input for the promotion of the area. However, it is recommended to cruise port representatives to think about initiatives and measures that exist but

have not been provided (nor identified in this study). This could add to the collection of sustainability initiatives and measures in the NSR, which consequently could contribute to the promotion of the NSR as a sustainable cruise region. Cruise ports could engage the city marketing departments and/or tourist offices in identifying best practices and selecting the best examples to be promoted. Cruise ports could also cooperate with cruise lines and tour operators to involve them in improving the sustainability experience of cruising in the NSR;

- In order to communicate a credible sustainable image, ports in the NSR should not just use quick gains stemming from examples of sustainability which do not require involvement of the (cruise) port. Ports should consider making a credible commitment themselves as well;
- Collaboration could take place between the port and local government to assess what kind of investments would be interesting to make to increase the sustainability image of the destination for visiting cruise tourists;
- The NSR should act as a cluster and could work on developing a commitment that can be communicated towards the cruise market. For instance, a code of conduct can be developed in which all ports connected to the NSR agree on a policy on how to deal with sustainability. Likewise, a declaration of intent can be signed in which certain objectives can be determined that should be reached within a certain period. One of these intentions could for example be to ensure that all cruise terminals have a Greenkey (or other type of) certification;
- It is important that ports establish reachable objectives, when considering commitments. Too optimistic objectives may not be reached which would damage credibility. With regard to establishing certain objectives and making investments, ports should keep in mind what their objective is: really improve sustainability or improve sustainability for branding purposes. In the latter case, ports (and the cluster as a whole) need to find out how

the customer experience will be improved by reaching a certain objective and whether this is worth the effort (investment). Hence, it is recommended to investigate the costs and benefits of investment options.



By Caramaria

Dunes & Sea

IV. ADDITIONAL DESK RESEARCH



By HdK

Northsea



TABLE OF CONTENTS

I. INTRODUCTION..... 54

II. SUSTAINABILITY IN EUROPEAN SEA AREAS..... 54

II.1. NORTH-EAST ATLANTIC..... 54

II.2. BALTIC SEA..... 57

II.3. MEDITERRANEAN..... 59

II.4. BLACK SEA..... 63

III. SUSTAINABILITY IN OTHER RELEVANT SEA AREAS 65

III.1. CARIBBEAN..... 65

III.2. ALASKA..... 68

III.3. SOUTH PACIFIC REGION..... 70

IV. CONCLUDING REMARKS..... 73

I. INTRODUCTION

As a follow-up to the study “Incorporating sustainability in the branding strategy for cruising in the NSR”, Cruise Gateway requested *Policy Research* to perform additional desk research into international sustainability measures in comparison to the ones taken in the NSR region. This desk research provides an exploratory overview of sustainability initiatives taken in various sea areas around the world. To allow for a high-level comparison, the research is mainly focused on initiatives taken through international cooperation, conventions and agreements. First, international sustainability initiatives in the four most important sea areas in Europe (North-East Atlantic, Mediterranean, Baltic and Black Sea) will be described. Secondly, international initiatives for sustainability in other sea areas that are popular destinations for cruise holidays will be regarded: the Caribbean, Alaska, and the South Pacific region. In the concluding remarks, some observations will be made regarding the comparative status of international sustainability initiatives in these regions.

II. SUSTAINABILITY IN EUROPEAN SEA AREAS

II.1. NORTH-EAST ATLANTIC

Fifteen Governments of the western coasts and catchments of Europe, together with the European Community, cooperate to protect the marine environment of the North-East Atlantic. These activities are undertaken mainly under the “Convention for the Protection of the marine Environment of the North-East Atlantic” (OSPAR Convention). The countries that ratified and are bound by the OSPAR Convention are: Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

a/ Main activities undertaken

Activities are undertaken in the following areas¹:

- **Biodiversity and Ecosystem:** making assessments of species and habitats that are threatened or in decline and developing programmes and measures for their protection, creating Marine Protected Areas (MPAs), assessing human activities in the OSPAR maritime area which may adversely affect it and developing programmes and measures to safeguard against such harm;
- **Eutrophication:** combatting eutrophication², thereby achieving a substantial reduction in inputs of phosphorus and nitrogen into areas where these inputs are likely, directly or indirectly, to cause pollution, including the assessment of progress in reducing nutrient inputs;
- **Hazardous Substances:** identification of substances that are of concern for the marine environment, monitoring and assessment of the sources and pathways of contaminants and their concentrations and effects in the marine environment, and identification of actions and measures required to achieve the Strategy objectives, including promoting the application of best available techniques and associated emission and discharge limit values for the most important industries;
- **Offshore Industry:** development and implementation of programmes and measures in respect of all phases of offshore activities, including exploration, appraisal and exploitation, reducing the harmful effects of activities such as discharges of produced water from the routine operation of production platforms, accidental oil spills, emissions to the atmosphere and acoustic disturbance; collecting information about threats to the marine environment, establishing priorities for taking action; and developing and periodically reviewing environmental goals;

1 www.ospar.org

2 Eutrophication is the result of excessive enrichment of water with nutrients which may cause an increase in the accelerated growth of algae in the water column and higher forms of plants living on the bottom of the sea.

- **Radioactive Substances:** OSPAR has banned dumping of radioactive waste, encourages use of Best Available Techniques to reduce discharges from the nuclear industry, and published reports on the reduction in discharges, concentrations and impacts of radioactive substances in the environment;
- **Joint Assessment and Monitoring:** assessing the status of the marine environment and follow up implementation of the activities described above.

b/ Accomplishments and outlook

In the *Quality Status Report 2010*³, OSPAR examines the impact of human influence on the sea. The key findings show improvements in almost all areas, however many problems persist regarding climate change effects and ocean acidification, hazardous substances, and biodiversity.

In specifically the North Sea region, some successes have been booked, such as improvement of fish stock, reduced inputs of hazardous substances and nutrients, and good coverage of Marine Protected Areas (MPAs). Concerns remain, such as: eutrophication, pollution with hazardous substances, amounts of litter, the slow progress towards sustainable fishing and the impacts of climate change.

Important issues that will be taken up by OSPAR unto 2020 are the following:

- Actions and measures for the protection of marine biodiversity, taking forward a coherent and well-managed network of marine protected areas, including six marine protected areas in areas beyond national jurisdiction;
- Climate change and ocean acidification;
- Achieving *good environmental status* in the North-East Atlantic by 2020,

3 OSPAR Quality Status Report 2010, available at <http://qsr2010.ospar.org>

by providing the regional platform for implementing the Marine Strategy Framework Directive.

Overall, the international sustainability initiatives in the North-East Atlantic and the North Sea region are well developed and progress in sustainability is achieved.

II.2. BALTIC SEA

In the Baltic Sea, international sustainability initiatives are also well developed. The nine Baltic coastal countries, and the EU, are cooperating towards increased sustainability under the “Convention on the Protection of the Marine Environment of the Baltic Sea Area” - more usually known as the Helsinki Convention (signed in 1974 by the then 7 Baltic states, entered into force in 1980). Governing body for the Helsinki convention is the Helsinki Commission, or HELCOM, working to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental co-operation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

a/ Main activities undertaken

HELCOM is active in a wide range of activities. As within OSPAR, the ecosystem approach is central in this approach. The main activities undertaken are⁴:

- **Information provision:** compiling information on the many ecosystems and habitats that provide vital breeding grounds, nurseries, shelter and food sources for the plant and animal species that live in and around the Baltic Sea;
- **Monitoring and assessment:** assessing trends in threats to the marine environment, impacts, the resulting state of the marine environment, and

4 www.helcom.fi

the effectiveness of adopted measures;

- **Marine pollution prevention:** preventing pollution from ships, ensuring that adopted regulations are observed and enforced effectively and uniformly through close international co-operation, identifying and promoting actions to limit sea-based pollution while ensuring safe navigation;
- **Land pollution prevention:** reducing pollution from all sources on land within the Baltic Seas catchment area, identifying point and diffuse sources of land-based pollution of nutrients and hazardous substances, and proposing suitable actions in order to reduce these emissions and discharges including the promotion of environmentally sound practices and technologies;
- **Incident prevention and response:** organising counteractive measures against pollution incidents at sea, such as setting up international cooperation, ensuring equipment and routines are in place, and conducting international training exercises;
- **Fishery management:** serving as a platform for dialogue between fisheries and environmental authorities on marine biodiversity and sustainable fisheries;
- **Agriculture impact:** enhancing the dialogue between agricultural and environmental authorities on the development and application of sustainable agricultural practices with the least environmental impact on the Baltic Sea;
- **Maritime Spatial Planning:** developing coherent Maritime Spatial Planning Principles that have been agreed by HELCOM and VASAB (an intergovernmental multilateral co-operation of eleven countries of the Baltic Sea Region in spatial planning and development; the countries include the countries cooperating in HELCOM, and Norway and Belarus).

b/ Accomplishments and outlook

The efforts of HELCOM efforts to reduce pollution and repair the damage to the marine environment have reportedly led to noticeable improvements in many areas, enabling people to bathe on beaches that were once polluted, and helping endangered wildlife populations to recover.⁵ To enable for further improvements, HELCOM has drafted the Baltic Sea Action Plan, a programme to restore the good ecological status of the Baltic marine environment by 2021. The cross-sectoral plan identifies the specific actions needed to achieve agreed targets within a given timeframe for the main environmental priorities: combating eutrophication, curbing inputs of hazardous substances, ensuring maritime safety and response capacity to accidents at sea, and halting habitat destruction and the on-going decline in biodiversity. The active participation of all major stakeholder groups in the area is ensured.

The Baltic Sea Action Plan (BSAP) was heralded as a cornerstone and pilot project in the context of the European Marine Strategy Directive. However, the achievements achieved in line with the BSAP are disputed, for instance by the WWF, who claim that: there is a considerable delay in national implementation of the BSAP, a transparent and clear reporting system is lacking, and sufficient mechanisms for cooperation have not been developed.⁶

II.3. MEDITERRANEAN

In the Mediterranean, most international sustainability initiatives are undertaken as a part of the Mediterranean Action Plan (MAP), the first Regional Seas Programme under the umbrella of the United Nations Environment Programme (UNEP). It was adopted by 16 Mediterranean countries and the European Community, in 1975. In 1976 these Parties adopted *the Convention for the Protection of the Mediterranean Sea Against*

⁵ www.helcom.fi/bsap

⁶ WWF (2013): Baltic Sea Action Plan – Is it on track?

Pollution (Barcelona Convention). The 22 Contracting Parties to the Barcelona Convention are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey.

a/ Main activities undertaken⁷

Although the initial focus of the MAP was on marine pollution control, socio-economic trends, combined with inadequate development planning and management were found to be the root of most environmental problems. Consequently, the focus of MAP gradually shifted to include integrated coastal zone planning and management as the key tool through which solutions are being sought. A wide range of activities is undertaken under UNEP MAP, in areas such as:

- **Sustainable Development:** in MAP, the concept of sustainability is approached as a broad concept, which has economic, social and environmental aspects. Therefore, four main objectives are set for promoting sustainability: (1) contributing to economic development, (2) reducing social disparities, (3) changing unsustainable production and consumption patterns and (4) ensuring the sustainable management of natural resources, and improving governance;
- **Combating land-based pollution:** it is estimated that in the Mediterranean, up to 80% of marine pollution is caused by land-based activities, with industrial activities from the chemical, petrochemical and metallurgy sectors as the main source of pollution. The main land-based pollution sources are identified, and remedial actions to be implemented by the year 2025 proposed. Also, a list of 103 pollution “hot spots” is drafted, and 51 sensitive areas are officially recognised as needing special attention and intervention;

7 www.unepmap.org

- **Preventing maritime accidents and illegal discharges from ships:** support is provided in developing national preparedness and response systems and assistance is offered in setting up appropriate port reception facilities for the collection of liquid and solid waste from ships;
- **Managing coastal areas:** some 48% of urban centres lack sewage treatment facilities and around 80% of wastewater is disposed of in the sea untreated, which means that a load of more than 3 billion cubic metres of untreated waters enters the sea every year. By implementing Coastal Area Management Programmes (CAMPs), individual problem-solving projects are undertaken in the worst affected coastal areas;
- **Preserving the Mediterranean marine and coastal biodiversity:** actions to protect and enhance natural and cultural heritage, in particular to promote the establishment and preservation of Specially Protected Areas and to incorporate the conservation of biological diversity into national policies;
- **Promoting information and communication:** MAP's efforts aim at increasing and improving the flow of information on the environment and on the MAP to the governments and national and international institutions and to promote greater public awareness on these issues.

b/ Accomplishments and outlook

In 2012, the UNEP/MAP published the *State of the Mediterranean Marine and Coastal Environment report*⁸, in which some of the following key issues for the Mediterranean and recommendations to those issues are identified:

- **Chemical contamination** of sediments and biota caused by pollution from urbanisation, industry, anti-foulants, and atmospheric transport. Although environmental conditions are improving in regard to certain pollutants in many Mediterranean areas, thanks to improved control of land based

8 UNEP/MAP: State of the Mediterranean Marine and Coastal Environment, UNEP/MAP – Barcelona Convention, Athens, 2012

pollution releases, contamination linked to hazardous substances remains a problem in many areas;

- **Eutrophication** caused by human-mediated input of nutrients into marine waters is a source of concern, especially in coastal areas near large rivers and/or cities;
- **Marine litter**, concentrated especially in bays and shallow areas, is increasingly regarded as a matter of concern across the Mediterranean;
- **Invasive non-indigenous species** have increased in recent years, particularly in the easternmost reaches of the Mediterranean. Documented impacts on natural diversity include predation, alteration of the food web, niche competition, and modification of habitats, leading to a variety of impacts on fishing, aquaculture, shipping, human health, and tourism;
- **Over-exploitation beyond sustainable limits** affects many of the commercially exploited fish stocks of the Mediterranean. The result is changes in species diversity, with some species regarded as Endangered, Vulnerable or Near-Threatened. Understanding how multiple pressures reduce sustainable limits of harvest is necessary for effective fisheries management. Aquaculture has increased noticeably since the 1990s, adding new pressures, such as pollution through the release of antibiotics and biocides, and the introduction of non-indigenous species;
- **Biodiversity** is still high in the Mediterranean, but some species of reptiles, marine mammals, birds, and fish are reaching dangerously low abundance levels. Complicating the issue, many areas in which offshore developments take place are located beyond national jurisdiction.

A special concern for the Mediterranean seems to be waste water treatment and sewage. The waste water treatment situation is reportedly very uneven among countries.⁹ While wastewater is treated in the majority of

⁹ MIRA project report on the Mediterranean Sea Pollution Situation addressed by the Horizon 2020 program of the ENPI (2012)

Mediterranean countries, in several countries, such as Slovenia, Croatia, Albania, Morocco and Palestine, most of the waste waters receive no treatment. Except Slovenia, the level of waste water treatment has increased for the last ten years in most countries, but with varying percentages ranging from 100% in the case of Malta to 1% in the case of Croatia.

A complicating factor for the Mediterranean is the political and social instability of the region.¹⁰ The social and economic differences between countries bordering the Mediterranean are a challenge for cooperating and managing common goods such as the sea or fish.

II.4. BLACK SEA

In the Black Sea, most international sustainability activities are undertaken under the umbrella of the *Convention on the Protection of the Black Sea against Pollution* (the Bucharest Convention). This convention was adopted in 1992 and entered into force in 1994. The contracting parties to the Convention are Bulgaria, Romania, Russian Federation, Georgia, Turkey and Ukraine.

a/ Main activities undertaken

The Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (2009)¹¹ highlights the main concerns and initiatives undertaken to reduce pollution in the Black Sea. These are: eutrophication/nutrient enrichment; changes in marine living resources; chemical pollution (including oil); and biodiversity/habitat changes, including alien species introduction. 49 high priority pollution sources are identified, and initiatives to reduce pollution are undertaken. Also, focus has been put on reducing

10 Scoullos (2010), Environmental and Sustainable Development Components of a European Strategy for the Mediterranean in 2010, in Scoullos and Ferragina (2010), Environmental and Sustainable Development in the Mediterranean,

11 http://www.blacksea-commission.org/_bssap2009.asp

pollution from insufficiently treated waste water and airborne emissions in all the Black Sea coastal states.

The Black Sea receives a large portion of nutrients via rivers, mainly the Danube. The Black Sea commission, responsible for implementing the provisions of the Bucharest Convention, cooperates with the International Commission for the Protection of the Danube River (ICPDR).

b/ Accomplishments and outlook

The Black Sea is considered a polluted sea area. According to information from the Black Sea Commission, efforts are beginning to bear fruit, since fewer and less intense algal blooms are now being recorded in the sea, while total fish catches have increased. Pollution from municipalities and industry is clearly declining due to economic recession in the lower Danubian and former Soviet countries and successful measures taken to reduce nutrient discharges in the upper Danube countries, including dramatic reductions in the use of fertilizers and considerable improvements in the treatment of waste water.¹² However, many severe environmental issues remain, such as¹³:

- Even though **nitrogen inputs** into the Black Sea have been reduced recently, they are still higher as those observed during the 1960s;
- **Discharge standards** are enforced only to a limited extent, in the Black Sea itself and in the rivers that discharge in the Black Sea (such as the Strait of Kerch connecting the Black Sea to the Sea of Asov, and the Danube);
- A huge increase in the **volume of oil** being transported across the Black Sea and oil/gas extraction from beneath the Sea itself have greatly increased the risk of oil pollution;
- **Native biological diversity** has undergone severe impact from invasive alien species.

¹² <http://www.icpdr.org/main/danube-basin/black-sea>

¹³ <http://www.icpdr.org/main/danube-basin/black-sea-trend-ecological-trend-western-black-sea>

Monitoring status remains an issue. The Strategic Action Plan mentions that regarding nitrogen levels, there is considerable uncertainty over the data used, making a call for updating and harmonisation of monitoring protocols. The current relatively low inputs of nitrogen and phosphorus to the Black Sea are partly due to the economic recession affecting the former communist countries (closures of large livestock farms and nutrient-discharging industries) Economic developments in these countries are likely to lead to increases in nutrient emissions in the future.

According to the World Wildlife Foundation, the “Black Sea region is at an environmental crossroads. It can continue on the path of neglect or it can move towards a more sustainable future.”¹⁴

III. SUSTAINABILITY IN OTHER RELEVANT SEA AREAS

III.1. CARIBBEAN

In the Caribbean, a large scale full region project has been initiated recently: the Caribbean Large Marine Ecosystem Project (CLME).¹⁵ The CLME Project began in 2009, and has resulted in the technical approval of the CLME Strategic Action Programme (SAP)¹⁶ in March 2013. This document provides both participating countries and the donor community with a framework and guidelines for concerted action in the fields of fisheries enhancement, fisheries sustainability, biodiversity and ecosystem protection, and alternative livelihoods. This SAP is now in the process of receiving political endorsement from the respective governments, after which new investments can be attracted to the region to help implement the programme.

14 http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/

15 www.clmeproject.org

16 <http://www.clmeproject.org/sap/CLME%20SAP%20v05022013.pdf>

a/ Main activities undertaken

Before the initiation of the CLME project, several international sustainability initiatives were undertaken by governments and organisations to reversing the trends in degradation in the Caribbean. However, these initiatives can be argued to have been largely piecemeal and nationally and regionally uncoordinated.¹⁷ The SAP has set out six strategies to induce a healthy marine environment in the CLME. These strategies focus mostly on enhancing and establishing regional governance arrangements, to overcome issues of weak governance and lacking wide scale international cooperation regarding sustainability initiatives:

1. Enhance regional governance arrangements for **protection of the marine environment**
2. Enhance regional governance arrangements for **sustainable fisheries**
3. Establish and operationalise **a regional policy coordination mechanism for ocean governance** with initial focus on shared living marine resources
4. Enhance governance arrangements for **ecosystem-based management of reefs**
5. Enhance governance arrangements for implementing an **ecosystem approach for pelagic fisheries**
6. Establish governance arrangements for implementing ecosystem-based **management of the Guianas-Brazil continental shelf**

Information management and monitoring is seen as vital in achieving holistic management of shared marine living resources with a view of sustainability. Therefore, initiatives for information management and a monitoring programme are important elements of the implementation of the SAP.

¹⁷ <http://clmeproject.org/faq>

b/ Accomplishments and outlook

Within the CLME project, three key issues have been defined as causing severe negative impact of the Caribbean sea area:

- **Unsustainable fisheries:** most of the fisheries in the CLME are recognized to be fully or over-exploited. Common root causes will typically relate to weak governance, awareness and control. An inadequate institutional framework and limited financial and human capacity to monitor and enforce the existing regulations, combined with a lack of awareness and/or access to viable legal alternatives, complicated the issue;
- **Habitat degradation:** activities and factors such as tourism, agriculture, fisheries, shipping and climate variability and change affect marine and coastal habitats. Coastal habitats within the reef and continental shelf ecosystems are particularly subject to impacts from coastal development, destructive fishing methods, mining, and marine and land-based sources of pollution (e.g. industrial and wastewater discharges, agrochemicals, and storm runoff);
- **Pollution:** pollution problems in the CLME can be linked to a diversity of both land-based and marine sources and activities: e.g. tourism, households, industry, agriculture, forestry, mining, shipping and exploration for oil and gas. The volume of *maritime transport* in the region makes that also this activity constitutes an important (potential) source of pollution. A complex issue is the problem of *land-based sources of pollution*, discharged by the rivers from the region's major drainage basins (e.g. the Amazon, Orinoco and Magdalena).

Furthermore, the CLME SAP identifies common root causes for lacking or unsuccessful sustainability initiatives in the Caribbean:

1. Weak governance (including legal & institutional frameworks, inadequate environmental quality standards and legislation)

2. Limited human and financial resources
3. Inadequate (access to) data and information (inadequate knowledge)
4. Inadequate public awareness & participation
5. Inadequate consideration of value of ecosystem goods & services
6. Population and cultural pressures
7. Trade and external dependency (high dependence on fish for income and export earnings)

Overall, (wide scale) international sustainability initiatives in the Caribbean seem to be in an early stage, still needing to overcome considerable challenges before being able to have concrete impact on sustainability of the Caribbean sea area.

III.2. ALASKA

In the Gulf of Alaska, sustainability initiatives are very well developed. As this popular cruise destination is geographically located in two countries (Canada and the USA), sustainability initiatives have a more local character than in the other regions described. This adds to improving the governance and thus the success of these initiatives.

a/ Main activities undertaken

Initiatives in the Gulf of Alaska focus on a wide array of issues. Sustainable fisheries are connected to one of the main livelihoods of the region. Reducing the risk and impact of oil spills is another important aspect of sustainable development. Initiatives are well developed, beyond the status of creating awareness and learning. Concrete initiatives are being taken to improve the status of the sea area, focusing on¹⁸:

- **Spill prevention and response:** actions such as review and approval of

¹⁸ <http://www.dec.state.ak.us/>

prevention plans; risk reduction measures and inspections; and education in proper spill prevention and response methods, ensuring effective response through the identification and rapid abatement of dangerous acute human exposures to hazardous substances; mitigation of the effects of spills on the environment and cultural resources; and restoration of property value and usability through adequate cleanup;

- **Water quality:** focusing on reducing the impacts of wastewater discharges, drafting water quality standards and conducting monitoring and assessment, including a comprehensive programme aimed at enhancing the sustainability of cruise shipping¹⁹;
- **Fisheries management:** Fisheries management is conducted by the North Pacific Fishery Management Council (NPFMC) and the State of Alaska, depending on the fishery in question.²⁰ Fishery management is well developed, covering a range of activities such as electronic monitoring, collecting and managing catch data, defining and enforcement of catch limits in the sea and in the rivers (most notably for salmon).

Local communities also undertake a wide range of activities with regard to sustainability, such as action plans to reduce greenhouse gas emissions, reducing energy use and the promotion of alternative means of transportation.²¹

b/ Accomplishments and outlook

Sustainability initiatives are very well developed in and around the Gulf of Alaska, having a considerable effect on the environmental quality of the sea area. Several issues remain, such as the effects of climate change which can be

¹⁹ http://www.dec.alaska.gov/water/cruise_ships/

²⁰ The NPFMC has primary responsibility for groundfish management in the Gulf of Alaska, Bering Sea and Aleutian Islands, including cod, pollock, flatfish, mackerel, sablefish, and rockfish species harvested mainly by trawlers, hook and line longliners and pot fishermen. Other large Alaska fisheries such as salmon, crab and herring are managed primarily by the State of Alaska. See <http://alaskafisheries.noaa.gov/npfmc/>

²¹ See for instance the sustainability initiatives undertaken in the city of Homer, Alaska: <http://www.cityofhomer-ak.gov/community/sustainability>

clearly experienced in Alaska. These impacts include coastal erosion, increased storm effects, sea ice retreat and permafrost melt. Over-hunting and over-fishing form an additional pressure.²²

The Exxon Valdez Oil Spill in the Prince William Sound in 1989 had catastrophic consequences for the marine environment in the region. This greatly improved awareness, and has had a significant impact on risk reduction. It has also led to one of the most thorough examinations of the effects of oil on the environment. While the vast majority of the spill area now appears to have recovered, pockets of crude oil remain in some locations, and there is evidence that some damage is continuing.²³

Overall, sustainability initiatives are at a high level in the Gulf of Alaska. The support and awareness on all levels (local, regional, state) ensures that these efforts will continue to bring results in the improvement of the sustainability of the region.

III.3. SOUTH PACIFIC REGION

The Pacific is a diverse region made up of countries and territories with varying land sizes, populations, natural resources, economies and cultures. Geographic isolation and the small land area and population sizes of the Small Island Developing States (SIDS) result in unique challenges for sustainable development. The most important driver for international sustainability initiatives in the South Pacific has been the Mauritius Strategy. This Strategy, formally the *Mauritius Declaration and the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States*²⁴ was adopted in 2005 by 129

22 <http://www.climatechange.alaska.gov/>

23 <http://alaskafisheries.noaa.gov/oil/> and <http://www.evostc.state.ak.us/recovery/status.cfm>

24 http://www.un.org/smallislands2005/pdf/sids_strategy.pdf

countries and 45 UN bodies (intergovernmental and specialized agencies). The implementation period for the Mauritius Strategy was concluded in 2010. In 2009, the Pacific Island Forum²⁵ endorsed the Pacific Oceanscape Framework, aimed at increasing marine protected area investment, learning and networking.

a/ Main activities undertaken

The sustainable development agenda within the Mauritius Strategy is a broad one, encompassing economic, social and environmental dimensions. The key areas defined by the Mauritius Strategy are indicative of the broad agenda: climate, energy property rights and development, intellectual property, biodiversity, culture and development, natural environment and disasters, marine resources, agriculture and rural development, health, transport and security, sustainable production and consumption, information and communication technologies. Countries in the Pacific region have developed National Sustainability Development Strategies to implement the Mauritius Strategy²⁶.

Initiatives undertaken are widespread and broad, but share common denominators.

- Most initiatives are taken on a national or local level; international or regional cooperation is lacking;
- Predominantly, initiatives focus on learning, creating awareness, research and education.

Some noteworthy exceptions to the national research and education focus are²⁷:

- Proliferation of Marine Managed Areas (MMAs), implemented by over 500

25 www.forumsec.org

26 See for an overview of initiatives: Sustainable Development in the Pacific: Progress and Challenges (2010), ESCAP Subregional Office for the Pacific, Suva, Fiji

27 Idem

communities spanning 15 independent countries and territories;

- Agreement regarding tuna purse seine fishing licenses, by the Parties to the Nauru Agreement (PNA), being Federated States of Micronesia, Kiribati, Marshall Islands, Palau, Papua New Guinea, Solomon Islands and Tuvalu, in 2008;
- Establishment of the South Pacific Regional Fisheries Management Organisation²⁸.

The Pacific Oceanscape initiative aims to expand protected areas and protected area networks, and will facilitate the sharing of information and lessons valuable to the sustainable management of the region's vast resources.

b/ Accomplishments and outlook

On a local level, various initiatives have been undertaken by Pacific SIDS towards implementing the Mauritius Strategy since its adoption in 2005.

However, the overall impact of these efforts is hard to measure.²⁹ Monitoring and information gathering on wide scale pollution in the Pacific, other than the Garbage Patch in the North Pacific³⁰, is not widespread.

A study undertaken by the Center for Ocean Solutions³¹ finds that pollution from nutrients has severe impact throughout the Pacific, productive marine habitats are lost to destructive fishing practices and overfishing and exploitation are reducing fish stock throughout the Pacific. Furthermore, strong effects of ocean warming, changes in ocean circulation, and ocean acidification

28 The South Pacific Regional Fisheries Management Organisation (<http://www.southpacificrfmo.org>) has been set up in 2012, an inter-governmental organisation that is committed to the long-term conservation and sustainable use of the fishery resources of the South Pacific Ocean. Members are: Australia, Belize, Republic of Chile, People's Republic of China, Cook Islands, Republic of Cuba, European Union, Kingdom of Denmark in respect of the Faroe Islands, Republic of Korea, New Zealand, Russian Federation, and Chinese Taipei.

29 <http://sites.duke.edu/duketodurban/2011/11/02/introducing-the-mauritius-strategy/>

30 http://education.nationalgeographic.com/education/encyclopedia/great-pacific-garbage-patch/?ar_a=1

31 Center for Ocean Solutions (2009), Pacific Ocean Synthesis, available at <http://www.centerforoceansolutions.org/sites/default/files/pdf/PacificSynthesis.pdf>

have been identified. Invasive species also are a priority concern.

Pacific SIDS are largely dependent upon external funds when investing in sustainability, especially when financial or trade interests do not correspond to sustainability goals. Investments in renewable energy such as solar power could be of great use to the Pacific SIDS, when technology transfers would be free and facilitated by donor countries. Financial support from developed countries is however decreasing, due to the global financial crisis. In addition to financial support from developed countries, expertise is lacking and international and regional cooperation stands to be improved.

IV. CONCLUDING REMARKS

In conclusion, some observations can be made regarding the status of international sustainability initiatives in the North Sea, in comparison to the other sea areas described above. On the whole, international sustainability initiatives in the North-East Atlantic including the North Sea Region are well developed. Other regions in which (international) sustainability initiatives are well developed are the Baltic Sea and Gulf of Alaska. Whether these sea areas are more developed regarding sustainability is hard to say on the basis of this explorative study. However, the overall awareness of sustainability issues, and level of local initiatives, seems to be higher in these regions than in North-East Atlantic sea area. In the Mediterranean, considerable effort and means are invested in sustainability, but impact of these measures is hampered mostly by issues of governance. In the Black Sea, the Caribbean and the South Pacific, international sustainability initiatives are in earlier stages of development.

The relative success of the development and successful implementation of international sustainability initiatives in the North Atlantic can be argued to be influenced by various factors, such as:

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- **Level of economic prosperity, political and social stability:** for developing countries, pursuing and adhering to sustainability measures can be difficult when these measures hamper economic growth. Political and social instability can also impede progress regarding sustainability initiatives. These issues are a challenge to sustainability improvements in the Black Sea, Caribbean, Mediterranean and the South Pacific. Countries bordering the North Sea are characterised by relative political and social stability; balancing sustainability efforts with economic growth seems more attainable in these countries
 - **Diversity in economic prosperity and cultural background:** when a region is composed of countries that are dissimilar with respect to economic prosperity levels, cooperation in sustainability efforts and governance of conventions and agreements appears to be more problematic. Difficulties increase when the number of countries bordering the sea region is larger. This is for instance an issue in the Caribbean, and the Mediterranean. Around the North Sea, this diversity is quite small, facilitating cooperation and governance
 - **Advancements in data collection and monitoring:** assessing and monitoring environmental impact and the effects of sustainability initiatives greatly improves awareness of the issues and effectiveness of the measures taken. Information drives initiatives forward. Regions such as the North Atlantic that have more well-developed sustainability programmes, including data collection and monitoring, seem better able to stay on top regarding sustainability.

Overall, it can be concluded that international sustainability initiatives in the North-East Atlantic are well developed in comparison to other sea areas explored in this study, and especially in comparison to the Caribbean, Mediterranean, the South Pacific and the Black Sea.



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