



Recommendations for Malta's National Air Pollution Control Programme

16 April 2019

We welcome Malta's intentions to reduce air pollutant emissions for the purpose of reaching compliance with the national emission reduction commitments, as set out in Annex II of the National Emission Ceilings (NEC) Directive.

Despite the fact that clean air is a basic requirement for human health and well-functioning ecosystems, air quality is globally in a constant decline. In 2012, the World Health Organization identified that 95% of Europeans living in urban environments are exposed to levels of air pollution considered dangerous to human health and about 420,000 premature deaths are known as a result in the European Union.

Primary particulate matter (PM), Sulphur dioxide (SO₂) and Nitrogen oxides (NO_x) emissions caused by road transport and shipping are of our major concern for Malta. We are aware that some of these pollutants – especially PM - originate from natural sources such as sea salt, soil and sand, however, in the case of natural causes only adaptation measures can be imposed whereas human-induced pollutants can be minimized to a great extent and mitigation measures put into force by the government. In our comments we would mainly like to focus on pollutants heavily emitted from combustion of shipping.

1. Background

Irrespective whether cruise or container ships, ferries, or yachts – ships gather a broad range of fuming smokestacks, which emit a great deal of air pollutants causing damage to our climate, environment and health. The reason for this is that seagoing vessels run on heavy fuel oil, which is highly charged in Sulphur, as well as emits black carbon, heavy metals, fine particulates (primary and secondary), and sulphur dioxide in the air. The sulphur content of marine fuels is currently capped at a maximum of 3.5 per cent (so called „Heavy Fuel Oil“, HFO). This is 3,500 times more than is permitted in the diesel fuel used in cars and trucks (0,001%).

In Malta - even though surrounded by sea and highly dependent on shipping traffic - knowledge and awareness on the problems resulting from ship emissions remain widely unknown and action from responsible government authorities is not being taken. Ships, vessels and other types of boats berthing in harbours which are often located in close proximity to dense urban areas, contribute massively to air pollution in these areas. Shipping air pollution can represent up to 40% of all Mediterranean coastal city air pollution. It represents a significant threat to human health, environment and climate. As pollutants are carried over long distances, it is not only the inhabitants of littoral zones but also the populations in inland regions, who are subject to respiratory issues as well as inflammations and cardiovascular diseases.



Recent study results published by the Department of Geosciences of the University of Malta, show the extent of air pollution caused by ships around the Maltese island. Atmospheric physicist Prof. Raymond Ellul and his team have assessed an area of 200km by 200km around Malta with 1,774,448 ship data points, showing 84,500 ship movements which were detected in the area in 2015 alone. Prof. Ellul highlights the problem of air pollution from ships in Malta, stating, “One big tanker that passes by has an engine of about 80 megawatts. A Maltese power station outputs a maximum of 450 megawatts. So a tanker is a fifth of that. But we get 200 ships of that size passing by Malta like that going through every day! It’s like having a couple of hundred mini-power stations going past every day,’ emitting sulphur dioxide and everything else a power station would emit” (THINK Magazine 2017). More detailed and technical information highlights that Malta is suffering 50.9 kilotonnes of nitrous oxide, 30.3 kilotonnes of sulphur dioxide, 3 kilotonnes of carbon monoxide, along with a 2080 kilotonnes of carbon dioxide. If the numbers are compared to emissions from cars, they equal nitrous oxide emitted from 4.1 billion cars, sulphur dioxide from 1,515 billion cars and carbon dioxide from 365.000 cars (comparison to average value of a car with emission standard Euro 4 in 2012).

Running engines of ships contribute considerably to emissions of sulphur oxides (SO_x), nitrogen oxides (NO_x) and particulate matter (PM). The latter includes soot emissions (black carbon) which are in particular harmful to health and climate. NO_x emissions diminish the function of the lungs and increase the risk of cardiovascular disease. NO_x is also a powerful greenhouse gas causing climate warming due to its contribution in the formation of ozone (O₃). High concentrations of O₃ in cities are responsible for the death of elderly people and people with poor health conditions. Emissions of sulphur oxides such as sulphur dioxide (SO₂) are harmful for our environment, not least because it causes acid rain which leads to the eutrophication of soils and coastal areas and it damages buildings and structures, particularly those made of limestone. Air pollutant emissions are furthermore responsible for a significant loss of productivity in agriculture and have a negative impact on biodiversity.

Countries that are facing the same problem – including Northern European countries, the USA, Canada and China - took action to reduce the pollution caused by ships in their territorial waters. Air pollution from ship traffic in the Mediterranean Sea can be significantly reduced by the introduction of an Emission Control Area (ECA). A recent impact assessment by the French Government, which started in 2017, investigated potential air quality improvements in the region following a switch to better grade marine fuels as well as the related socio-economic benefits of reduced health costs and environmental damage obtainable by the designation of an ECA in the Mediterranean Sea. The key finding is that the region would benefit most from a combined Sulphur Emission Control Area (SECA) and Nitrogen Emission Control Area (NECA). SO₂ would be reduced by 77% and in port areas even by 100%. NO₂ would decline by up to 76% in coastal areas and the east of the Mediterranean Sea. The annual mean of particulate matter (PM_{2.5}) would go down by 15 to 20%. Shipping emissions cause 50,000 premature deaths per year in Europe and cost €60 billion just in health costs per year in the European Union (EU). In the Mediterranean region only, about 6,000 premature deaths could be avoided due to the reduction of the particle pollution.

Declaring the Mediterranean Sea as an Emission Control Area is one of the many existing solutions. Beside political measures, governments and private port authorities can implement technical and infrastructural measures, which address the issue of air pollution from ships directly. In July 2017, the European Commission published a study on port infrastructure to promote environmentally friendly maritime transport activities and sustainable transportation. The study highlights best-practice examples from



various ports worldwide, benefits and costs, including the economic aspect and environmental potential of certain schemes and guidelines to equip other ports on how these practices can be developed in their respective countries.

2. Recommendations

We urge our national government to support the designation of the Mediterranean Sea as a combined SECA and NECA by 2020 and recommend to put a strong focus on the reduction of air pollutants emitted from ships into Malta's National Air Pollution Control Programme. Suitable measures have to be identified and implemented to reduce the air pollution from ships in Malta and the Mediterranean to create less damage to our environment and health.

Suitable measures for Malta for cleaning and greening the shipping sector could include for instance:

- **Political measures:** reduction of sulphur dioxide and nitrogen dioxide emissions by establishing a so-called emission control areas (ECAs) in territorial waters – ideally including Hurd's Bank. A maximum value for sulphur content could be 0.1 percent, compared to a current 3.5%. Another idea would be the creation of a national tailor-made policy framework on shipping emissions
- **Technical measures:** promote (1) the installation of diesel particulate filters (DPF) on all (cruise) ships and ferries berthing and shipping in Malta, which reduce soot emissions almost completely; (2) install selective catalytic reduction systems (SCRs) which can eliminate most of the NO_x from ships exhaust fumes; and (3) closed-loop seawater scrubbers and port facilities to cater for toxic waste
- **Infrastructural measures:** provision of a power supply for electric ferries (e.g. Gozo Channel, Birgu – Valletta – Sliema connection); suitable for Malta but tackling emissions from cars at the Gozo terminal would be the installation of roof shading structures for cars and mandatory switched-off engines
- **Voluntary measures for ports and ship owners:** air pollution reduction measures can be introduced, such as ecological port fees (ships pay their port fees depending on environmental performance, including their respective emission balance, creating incentives for ship operators to invest in clean technologies); own incentive programs for ships that go beyond the legal requirements can be promoted, such as the "Green Ship Program" that rewards ships with cleaner engines per call, greening national sea transport including ferries and local ship transport by installing technical measures (see above) on these ships (these could also be useful to promote/increase sea transport in Malta to reduce air pollution from cars)

3. Further information:

ECAMED: a Technical Feasibility Study for the Implementation of an Emission Control Area (ECA) in the Mediterranean Seas (2019): https://www.ecologique-solidaire.gouv.fr/sites/default/files/R_DRC-19-168862-00408A_ECAMED_final_Report_V5.pdf

Position Paper: Emission Control Area (ECA) for the Mediterranean Sea - Effective measure to tackle air pollution from ships (2018): <https://birdlifemalta.org/wp-content/uploads/2019/01/NGOs-background-paper-on-the-MedECA.pdf> (attached)



THINK Magazine (2017), Issue 20: Stuck in the middle with the fumes, University of Malta.
<https://www.um.edu.mt/think/stuck-in-the-middle-with-the-fumes/>

BirdLife Malta's Together against Air Pollution from Ships project:
<https://birdlifemalta.org/conservation/current-projects/together-air-pollution-ships>