

CONGESTION ON OUR ISLAND

VERTICAL AND HORIZONTAL CONGESTION
IN RELATION TO THE DETRIMENTAL EFFECT ON
THE MALTESE SOCIAL AND LEGAL WELL-BEING

A PROPOSAL PAPER BY ELSA MALTA'S LEGAL
AND SOCIAL POLICY ORGANISING COMMITTEE

Acknowledgements

ELSA Malta President: Bernice Saliba

Director for Social Policy and Legal Publications: Nicole Sciberras Debono

Policy Paper Leader: Jake Camilleri

Policy Paper Team: Jake Camilleri, Dionne Taryn Gatt, Patrick Farrugia, Raphael Buttigieg

Reviewing: Dr Simone Borg

Design: Nicole Sciberras Debono, Daniel Vella

ELSA Malta's Legal & Social Policy Organising Committee

Thinking Ahead in Social Policy

Foreword

Months of hard work, co-operation, planning, drafting and excitement by ELSA Malta's Legal and Social Policy Organising Committee, bring us to the publication of our proposal paper 'Congestion on our Island'. With its conclusion, we can finally say that we are on the map when it comes to proposing policy regarding infrastructure and adequate preservation of our island. It is time that we get the ball rolling on this matter, and rather than solely being reactive, we wish to show that we are proactive on the matter. ELSA Malta remains committed to thinking ahead on several heated issues that have a social impact. It is not merely a right, but a duty as law students to continue voicing our opinion, proposing legislation and discussing ideas. This proposal paper is a clear example.

In order to attempt at providing a new and innovative outlook on the subject, ELSA Malta has decided to tackle the issue of congestion on our island from a multi-levelled perspective, horizontally and vertically, as really and truly, these complement each other and ultimately relate to one another. Our perspective on the issue of congestion was not tackled merely on a factual and research-based level, but we took it upon us to provide alternatives and remedies to the realities which we currently face, as we believe that discussion is good and healthy, but proposals are that which are ultimately needed to provoke change.

Many people are behind such a project, and this publication would not have been possible without a dedicated and keen team. Indeed, I have been lucky enough to have worked with four enthusiastic and hardworking researchers forming part of an even bigger team, that of ELSA Malta's Legal and Social Organising Committee. To the members of the Organising Committee, your hard work never goes unnoticed and I applaud you for your great dedication in this publication. I would like to express my gratitude to Jake Camilleri, who led the production of this proposal paper, and his great team of researchers and writers, Dionne Taryn Gatt, Patrick Farrugia and Raphael Buttigieg. My appreciation also goes out to the ELSA Malta Executive Board 2016/2017 and incumbent President, Bernice Saliba for all the encouragement and

enthusiasm in tackling this project. I wish to extend my appreciation to Dr Simone Borg who reviewed our proposal paper and even met up with our researchers to provide suggestions to mentor the team in the best possible way.

On behalf of the ELSA Malta Social Policy Office, we hope that you enjoy reading our paper, take the time to evaluate our suggestions, and lastly to follow us and support us in our aim - to always be proactive!

Nicole Sciberras Debono
Director for Social Policy and Legal Publications
12 February 2017

Table of Contents

1. Solar rights	10
1.1 The need to consider alternative energy sources	10
1.2 A comparative analysis	11
1.2.1 The US Approach toward solar rights particularly in the California Solar Rights Act ...	11
1.2.2 California Solar Rights Act	11
1.2.3 Limits on covenants, conditions and restrictions to restrict solar installations	12
1.2.4 Reasonable Restrictions	12
1.2.5 Other Restrictions	13
1.2.6 Minimum Standards	13
1.2.7 California Solar Shade Control Act	14
1.2.8 Solar Obligations	15
1.2.9 Solar Obligations in Israel	15
1.2.10 Solar Obligations in Spain	16
1.2.11 Solar Obligations in other countries	16
1.3 What we can learn from this	17
2. High-Rise	18
2.1 What is considered as high-rise or 'tall buildings'?	18
2.2 Criteria for the establishment of such buildings	19
2.3 Negative impact of such buildings	21
3. The Planning Authority	23
3.1 The Paceville 'Master-Plan'	23
3.2 Extension of the Public Consultation	26
4. Pollution and comments on the Paris Agreement	28
4.1 Introduction	28
4.2 How does Malta FareFare?	29
4.3 Paris Agreement	31
5. Reducing cars on our roads	32
5.1 An introduction to the problem	32
5.2 Innovative vehicle regulation in Singapore	33
5.3 Tallin Public Transport Experiment	36
5.3.1 Introduction to the Concept of Free Public Transport.	36
5.4 Problems which may arise	37
5.5 Can Malta Follow Suit?	39
5.6 Increased use of boat system	40
6. Proposals	43
Solar Rights	43
High-Rise	43
Reducing and Regulating the Number of Cars on our Roads	44
Fare Free Public Transport	45
Boat Scheme	45
Conclusion	46

Bibliography 48
 Formal Sources 48
 Legislation 48
 Online Journals 48
 Websites 48

Abstract

Over the past years, the issue of congestion has become an increasingly detrimental problem to our islands. When discussing congestion, one should not merely think of it as traffic or a multitude of cars on the road, although this is a key issue. Rather, one should look both at the vertical and horizontal aspect of congestion. Being a small island, Malta suffers from a high population density, which only adds salt to an already open wound. Some of the main issues that this paper seeks to tackle include the recent high-rise controversy regarding Tigne and Mriehel. The Planning Authority shall also be criticised in light of the manner in which the aforementioned permits were granted.

Discussing congestion from both a Legal and Social stand-point, ELSA Malta seeks to also discuss the social dynamic of condominium rights such as air space, amongst other notes. This amalgamation of legal and social ideas is key towards the scope of this paper. One cannot observe a problem from one angle, be it infrastructural, legal or social. Rather, the combination of these problems gives rise to the current epidemic currently plaguing the island. ELSA Malta realises the need for technological advancement – as well as advancements in other fields, to enable a country to run efficiently and retain a competitive streak.

What ELSA Malta seeks to do is strike a balance between holding on to our heritage whilst still giving way to newer ideologies and advancements. Admittedly, this is no easy endeavour. On the one hand, the need for advancement is ever-present in a comparatively less-developed society, when being compared to richer countries with more plentiful resources. With this notion, an equilibrium must be achieved - between the need of advancement and the obligation each of us faces to uphold this cultural heritage and truly improve our country. Such an equilibrium may be brought about by renovation and regeneration, all in a bid to please an ever-evolving social dynamic. Bearing this in mind, ELSA Malta strives to maintain objectivity and an unbiased approach throughout this paper, choosing to analyse a problem from different perspectives rather than tackling a problem unilaterally. We seek to achieve such neutrality through grounded opinions and facts, giving the reader the opportunity to form an opinion based on such facts.

Finally, ELSA Malta hopes that its readers are inspired to act more pro-actively in their day-to-day lives. Crying out in vain reaps no fruit unless change is achieved on an individual level. That is not to say that legislative changes bear no results, which is often necessary to spur individual action. ELSA Malta aspires to inspire - be the change which you seek.

Introduction

Despite its size, Malta is the most densely populated country in Europe, featuring 1,308 inhabitants per square kilometre.¹ Notwithstanding its size however, the island is enriched by its history and cultural heritage; ranging from protected buildings, to decorative facades and our beloved houses of character. Whilst ELSA Malta recognizes the need for advancement, more so in an exponentially-advancing world, one must not turn a blind-eye to features which lend a distinctive character to the Maltese islands and serve to showcase its more laudable aspects.

As previously mentioned, the vertical and horizontal aspects of congestion shall be tackled. Nevertheless, ELSA Malta realises that congestion as a whole is an immensely voluminous topic, and should be treated with the attention that such an issue deserves. ELSA Malta has chosen to discuss what seem to be the most formidable issues, based on their effect not only on the inhabitants' quality of life; but also on the island. For the purpose of this proposal paper, the main aspects of vertical congestion and horizontal congestion shall be discussed. Through this paper, a comparative analysis shall be made with countries which have faced similar problems to those of Malta, in order to broaden one's horizons and tackle the issue creatively. Whilst care has been taken to ensure such comparisons are made with similar countries based on objective criteria and certain demographics,² one may need to look outside the box when current solutions do not work efficiently.

In light of the recent civil uproar, the first issue that shall be discussed is that of 'high-rise buildings' and the risks involved. Delving deeper into this topic brings about a series of questions, amongst others: How high is too high? Is there a balance being struck between the needs of the people and industrial advancement? How are government entities and legislation safeguarding such a balance (if at all)? In layman's terms: permits for a 38-storey 'Townsquare' tower project in Tigne, were narrowly approved by the PA despite outcry both by the public and Sliema Local Council *inter alia*. Notably this was not the only permit which was frowned upon. Another, albeit less controversial approval was granted to Tumas and Gasan holdings, for a series of towers in Mriehel.³ The main issue ELSA Malta seeks to tackle with this is that of patrimony vis-à-vis advancement. The patriarchal nature of the Maltese is evident in issues such as these. In light of this, how willing is the present government to tackling such an issue whilst retaining public respect and integrity?

Another interesting point that shall be discussed is that of solar rights (or lack thereof) in Malta. The past few decades have proven the need to move on from

¹ United Nations Department of Economic and Social Affairs, Population Division World Population Prospects: The 2015 Revision, Volume II: Demographic Profiles, pg. 489.

² Such as size, population, population density, climate, etc.

³ Helena Grech, *Updated: Mriehel Towers Application Approved, But PA Orders More Parking Spaces* - The Malta Independent' 2016.

traditional fuel sources and thus, a brief evolution of this need shall be provided to give context to the present-day situation. Furthermore, an insight shall be given into how various jurisdictions grant solar rights to its citizens as well as protect those rights. A brief overview of selected statutes shall be given, in order to better understand how such rights are protected, as well as the obligations such citizens must conform to in order to benefit from such protection.

In addition to this, the recently-announced 'Paceville Master Plan' is also a heated topic of discussion. Such an endeavour will definitely be open to further scrutiny in the future. So much so, that the Planning Authority had extended its public consultation regarding the plan.⁴ Whilst some may argue that this is not enough, it is an interesting notion to point out when compared to the controversial nature of other plans. Nonetheless, such a behemoth of a project is still in its infancy and requires further detailed assessment reports as well as further insight into expropriation compensation for Paceville's residents.⁵ Furthermore, this paper shall also briefly look into the number of permits being handed out by the PA and the message being sent by such apparent lenient standards. Compliant to this lenient nature, the notion of 'paying-off' small illegalities were met with mixed emotions. As such, such a scheme shall be analysed whilst taking both sides of the coin into consideration.

The problem of congestion is not one which can be tackled solely from a legal aspect. There is a certain social dynamic, or stigma even, which plagues the island. When paired with Malta's exorbitant population density, one can already imagine the tension which arises within such a small landscape. For this reason, one must not only think about going up, but down as well. The need for a metro system has never been more evident. Yet again, such a system shall be discussed whilst looking into the possibility of implementing a system, in light of recent advancements. One would think that travelling such small distances would be a simple endeavour, yet this is gravely mistaken. This paper seeks to delve into the cause of such frustration whilst travelling, and possibly offer practical solutions.

Finally, the topic of horizontal congestion is dealt with mainly in relation to the gruesome amount of traffic that has engulfed our roads. As such, the topic of public transport as well as other means will be discussed in this aspect. A prime example would be the Tallinn Public Transport Project, where such transport was made free to residents whilst tourists found themselves incurring hefty costs to use. Would such a system be practical for Malta? Then again, Malta suffers from high road traffic density as well as lacking infrastructure in this aspect. ELSA Malta seeks to discuss what legal measures and incentives are available and offer a comparative analysis to urge the government to implement foreign systems where applicable. The question

⁴ Julian Bonnici, *Public Consultation on Paceville Master Plan Dominated By Jeers From Angry Crowd* - The Malta Independent' 2016.

⁵ Kurt Sansone, *Anger About Paceville Master Plan Expropriations Justified* - Sandro Chetcuti (Times of Malta, 2016).

arises whether the extreme use of cars rather than other means (such as walking or biking) is really a need or mostly a social issue. Throughout the paper, ELSA Malta hopes to show how rather than using more viable and economically friendly modes of transport, it is becoming increasingly obvious that the Maltese are driven to using private passenger vehicles. Furthermore, the paper delves into a rather controversial topic: Vehicle Tax. Leading by example, Singapore has some of the strictest laws regulating the purchase of private vehicles. Should Malta follow in its footsteps to a certain extent?

To conclude, ELSA Malta's main goal is to provide an objective overview of the current issues and explain how they affect us, all whilst offering constructive criticism and proposals. To achieve this, ELSA Malta has chosen to take a comparative approach with countries both in and out of the European Union. ELSA Malta firmly believes that in order for progress to be made, it is crucial that one is proactive in all that one does, whilst being able to enjoy protection from any abuse that may occur. Such progress may only be made through constrictive criticism as well as drastic changes if the current system is being heavily strained. ELSA Malta urges legislators and all those who are in a position of power and accountability to strive to create an equilibrium between the needs of the people and those of the island.

Vertical Congestion

1. Solar rights

1.1 The need to consider alternative energy sources.

During the 1970s energy crisis, the world, particularly the United States, Canada, Western Europe, Japan, Australia and New Zealand, faced petroleum shortages which triggered countries to consider action plans on the use of renewable sources to sustain their energy needs.

Although many countries have tried to shift from non-renewable to renewable energy sources, decreasing fuel prices somewhat stalled the potential change in mentality and the national action plans produced did not seem to be enough for the majority of energy needs to be met by renewable resources.

The need for energy supply security, the extreme use of natural resources and the need to address the effects of climate change are some of the key factors which led the European Union to consider and create a European energy policy. Despite being somewhat new, the concept has been present from the inception of the European Coal and Steel Community around 50 years ago.⁶

Various countries all over the world are now evaluating their strengths and weaknesses in order to come up with sustainable solutions. For example, Malta's climate characterized by clear skies and hot temperatures throughout most of the year is ideal for the production of solar energy. On the other hand, these alternative energy solutions cannot be exploited to their full potential without effective legal and policy frameworks ascertaining user's rights and protection.

For the purposes of this section, we shall be focusing on how countries, in particular the state of California in the US and certain European states have implemented laws to protect the rights to solar access and how the same system would translate to Maltese law.

Solar power refers to 'the power obtained by harnessing the energy of the sun's rays'.⁷ Such energy may be collected by installing photovoltaic (PV) panels which absorb the sun's rays and convert it to solar energy. Therefore, a family or business investing in these PV panels require solar access since these panels must be directly exposed to the sunlight in order to generate solar power.

⁶ ECSC Treaty, Paris 1951: France, Germany, Italy, Benelux formed Community with the aim of organising free movement of coal and steel and free access to sources of production. Additionally, a common High Authority supervised the market, respect for competition rules and price transparency. This treaty is the origin of the European institutions. 'Treaty establishing the European Coal and Steel Community, ECSC Treaty', (Summaries of EU legislation), <[⁷ English Oxford Living Dictionaries, <\[https://en.oxforddictionaries.com/definition/solar_power\]\(https://en.oxforddictionaries.com/definition/solar_power\)> accessed on 6 December 2016.](http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_ecsc_en.htm#>, accessed 6 December 2016.</p></div><div data-bbox=)

Potential investors will only consider installing such solar energy systems if they are persuaded that the investment will be cost-efficient and reap the promised benefits. Prior to installation, investors must think about whether their panels will be shaded by taller structures or vegetation in the future making their PV panels less efficient than initially expected. The introduction of solar access rights and solar easements would allow peace of mind by ensuring that people investing in solar energy systems are protected from potential shading from neighbouring tenements and public or private restrictions from using a property for the installation of these solar energy systems.

This would also bring Malta closer to achieving its Europe 2020 targets. Malta, was deemed to have one of the lowest contribution of renewable energy in the EU with just 0.1% of its energy produced through renewable sources. The European Commission has now set the target for Malta to produce 10% of its energy from renewable sources within the upcoming 4 years against its current output of 4.2%. Although the steps taken during the past years have significantly improved Malta's situation in the energy sector, the majority of energy is still imported and the island still needs to consider alternative and more sustainable ways to satisfy its energy requirements. Introducing solar rights to protect those people who invest in solar panels would definitely be a step in the correct direction.

1.2A comparative analysis.

1.2.1 The US Approach toward solar rights particularly in the California Solar Rights Act

According to recent statistics, installations of solar energy systems in the US have increased seventeen-fold since 2008 from 1.2 GW then to an estimated 30GW at present. In addition, the average cost of solar PV panels has dropped by 60%⁸ and although there may still be some obstacles until solar energy becomes as affordable as other resources, the figures seem promising.

One of the main reasons for these successful figures seems to be the importance given to solar access rights and easements. The former refers to the right of homeowners to install a solar energy system and to be protected from public or private restrictions to the use of property for such installation.

1.2.2 California Solar Rights Act

The state of California has long been considered as a pioneer in the protection of solar rights and the Solar Right Act,⁹ enacted in 1978, was deemed as an innovative

⁸ Office of Energy, Efficiency and Renewable Energy, *Solar Energy in the United States*, <<http://energy.gov/eere/solarpoweringamerica/solar-energy-united-states>> accessed 6 December 2016.

⁹ *Solar Rights Act*, Chapter 1154, State of California.

piece of legislation at the time of promulgation due to its clear stance on the importance of promoting solar energy as alternative means of energy.

According to the original legislation “[t]he purpose of the act is to promote and encourage the widespread use of solar energy systems and to protect and facilitate adequate access to the sunlight which is necessary to operate solar energy systems”.¹⁰ Moreover, the enacting bill further affirms the rationale that:

The use of solar energy systems will reduce the state’s dependence on non-renewable fossil fuels, supplement existing energy sources, and decrease the air and water pollution which results from the use of conventional energy sources. It is, therefore, the policy of the state to encourage the use of solar energy systems.¹¹

1.2.3 Limits on covenants, conditions and restrictions to restrict solar installations

Under Californian law, owners of an immovable property forming part of a common interest development have the ability to form an owners’ association to tackle common interests and issues in a harmonious manner.

Generally, the rules regulating this association are stipulated in the deed of acquisition of immovable property, which deed would include covenants,¹² conditions¹³ and restrictions.¹⁴ These are three legal mechanisms used to regulate aspects of the homeownership in common development and may include regulation on installation of solar energy power and access.

According to Section 714(a) of the California Civil Code, any covenant, conditions or restrictions which may effectively prohibit the installation or use of a solar energy system is considered to be void and unenforceable. Such an article evidently disallows any prohibition that may be present in the deed of acquisition or other such instruments against the installation of a solar energy system and aims to protect the right to each of the owners’ solar access.

1.2.4 Reasonable Restrictions

Despite provisions prohibiting the imposition of covenants, conditions and restrictions that prevent the installation or use of solar energy, such a restriction is not exhaustive. In fact, Californian law attempts to strike a balance between the protection of solar rights and the possibility of having restrictions which are reasonable.

¹⁰ Ibid. Section 2(c).

¹¹ Ibid, Section 2(b).

¹² These are enforceable promises that assign either a benefit or a burden to the property. Since they are usually part of the property title or deed, they will be applicable to subsequent owners of the same property.

¹³ These are circumstances that may terminate an ownership interest.

¹⁴ These are legal restrictions placed on the ownership or use of the property, such as easements.

As stipulated in Section 714(b) of the California Civil Code, [...] reasonable restrictions on a solar energy system are those restrictions that do not significantly increase the cost of the system or significantly decrease its efficiency or specified performance, or that allow for an alternative system of comparable cost, efficiency, and energy conservation benefits.

Therefore, in order for a restriction on the installation and use of a solar energy system to be acceptable under the Solar Rights Act, it must be reasonable and does not significantly increase the cost of the system or decrease the efficiency or specified performance.

1.2.5 Other Restrictions

Another exception to the general rule is found under Section 714.1 of the California Civil Code, which outlines a number of reasonable restrictions that may be imposed by the owners' association.

These include the following:

- (a) [Restrictions to] the installation of solar energy systems installed in common areas [...] to those systems approved by the association.
- (b) Require the owner of a separate interest [...] to obtain the approval of the association for the installation of a solar energy system in a separate interest owned by another.
- (c) Provide for the maintenance, repair or replacement of roofs or other building components.
- (d) Require installers of solar energy systems to indemnify or reimburse the association or its members for loss or damage caused by the installation, maintenance, or use of the solar energy system.¹⁵

The above-mentioned restrictions are separate and distinct from the reasonable restrictions explained in the previous section.

1.2.6 Minimum Standards

Although solar access rights are given utmost importance in the Californian Solar Rights Act, there are aspects such as the interests of public safety and the common good that are given precedence over rights to solar access.

In fact, Section 714(c) of the California Civil Code clearly stipulates the minimum safety requirements that the solar energy system must adhere to be installed. Should these characteristics not be respected, the government authority receiving the

¹⁵ California Civil Code, Section 714.1.

application for the solar energy system may refuse the application. The minimum health and safety requirements outlined are the following:

- (1) The solar energy system shall meet applicable health and safety standards and requirements imposed by the state and local permitting authorities.
- (2) A solar energy system for heating water shall be certified by the Solar Rating Certification Corporation (SRCC) or other nationally recognised certification agencies. SRCC is a non-profit third party supported by the United States Department of Energy. The certification shall be for the entire solar energy system and installation.
- (3) A solar energy system for producing electricity shall also meet all applicable safety and performance standards established by the National Electrical Code, the Institute of Electrical and Electronics Engineers, and accredited testing laboratories such as Underwriters Laboratories and, where applicable, rules of the Public Utilities Commission regarding safety and reliability.¹⁶

1.2.7 California Solar Shade Control Act

Keeping in mind the considerable amount of money that is invested to install solar energy systems, it must be ensured that the owner's solar rights are protected as fully as possible. Unfortunately, due to the large amount of built-up areas and communities, there is a good possibility that a solar energy user's panels end up in the shade, thus decreasing the effectiveness of the solar panels. Moreover, it is highly predictable that the growth of trees and other plants will shade the solar energy even after the installation.

The California Solar Shade Control Act was enacted in 1978 in order to balance the planting of trees and shrubs for shade and visual appeal, with the goal of increased use of solar devices. Although the state of California encourages the planting of trees and shrubs for both their environmental and aesthetic value, the California Solar Shade Control Act is based on the premise that the promotion of renewable energy sources must in certain circumstances take precedence over the maintenance of trees and shrubs.

Amongst the most notable of these provisions, one finds the prohibition of planting trees or shrubs or allowing a newly planted tree or shrub from casting a shadow of more than 10% over the neighbouring tenement's solar collector between 10am and 2pm.¹⁷

¹⁶ Ibid, Section 714(c).

¹⁷ California Public Resources Code, Section 25982 <<http://codes.findlaw.com/ca/public-resources-code/prc-sect-25982.html>> accessed 12 December 2016.

In addition, Californian law stipulates that solar collectors need to be installed in accordance with particular local building and setback requirements. In fact, it is stipulated that the solar panels should be set back not less than 5 feet from the property line and no less than 10 feet above the ground.

The height may be less than 10 feet but, only if in addition to the 5-foot setback, the collector is set back three times the amount lowered.¹⁸

1.2.8 Solar Obligations

Another concept related to the promotion of solar energy is that of solar obligations. The latter requires that a minimum share of heating demand is provided for by solar energy. Such an obligation generally applies to new buildings, buildings that are being renovated and buildings which are already constructed but are having their heating system replaced.

Solar obligations can be a method by which the development of new buildings can contribute to a greener environment in a safe and practical manner. In fact, it seems to strike a balance between the increase in built environment and the need to reach energy targets.

1.2.9 Solar Obligations in Israel

Israel does not have its own energy resources and therefore needs to import oil and coal in order to satisfy their energy needs. This situation, as well as its somewhat rocky relationships with its oil providers, led the country to go back to the drawing board to think of suitable means to generate energy in a sustainable and practical manner.

Having a similar type of climate to Malta, Israel used this to its advantage in order to advance solar technology to an extent which makes it almost as cost-competitive as fossil fuels.

According to regulations issued under Israel's National Planning and Building Law, 5725-1965, one is required to install a solar system in the building in order to provide for hot water. Such solar system must be installed to the satisfaction of the local planning commission and must essentially adhere to the following requirements:

- The tank and the collector shall not be visually offensive;
- The tanks shall be placed in such a way that they will integrate with the architecture of the building;
- The collection tank shall be white, unless the local planning commission make a different determination.¹⁹

¹⁸ Ibid., Section 25981.

¹⁹

It should be noted that the obligation to install a solar energy system to provide for hot water became applicable for buildings erected subsequent to the enacting of these Regulations. In reality, there was no need for these Regulations to be made applicable to buildings that were already built since the concept of solar energy was already familiar to the Israelis even prior to the enactment of solar legislation. The latter only served to increase installations of solar water heaters and to further improve the population's mentality on sustainable energy.

The result of such solar obligations has been quite positive. Firstly, anyone wishing to obtain a permit for construction of a residential building may only do so upon the installation of a solar supply system. Secondly, the local planning commission supervises the installation of such solar systems and considers their visual impact as well as their integration with the existing building architecture and colour of the system.

On the other hand, the local planning commission may grant an exemption to this requirement of installing a solar system if it is determined that due to the amount of shade falling on the building, the system to be installed would be useless. This is after consideration is given to the possibility of having auxiliary systems to heat water integrated in case the building is not exposed to enough sunlight.

1.2.10 Solar Obligations in Spain

In March 2006, the Spanish Government adopted a new technical building code which included the obligation to cover the need for domestic hot water through solar thermal energy. Parallel to the legislation adopted in Israel, such obligation would be applicable to new buildings or those buildings which are being reconstructed.

Despite the 2006 technical building code, the city of Barcelona was the real pioneer of solar obligations with the enactment of the Solar Ordinance in 2000. The Ordinance applies to buildings intended for residential, health-care, sports, commercial and industrial use, and generally, any activity which involves the existence of kitchens, laundries, or other circumstances that require a significant consumption of hot water.

The implementation of this Ordinance led to an increase in the use of solar thermal energy and stimulated the installation of solar thermal energy.

1.2.11 Solar Obligations in other countries

Although Germany's climate does not favour the use of solar energy systems, they are world leaders in the generation of solar energy. Through the Renewable

Based on the unofficial and non-binding translation found in 'Aspects of Solar Energy Legislation: A Comparative Analysis and the Maltese Perspective' [2010], Mark Abela, 112.

Energies Heat Act,²⁰ an obligation was imposed on owners of buildings to provide for at least part of the heat supply used in the building through renewable resources. The owner is left independent to choose how the heat should be supplied, provided that a certain percentage of the heat is supplied through the said renewable resources.

Countries, including Italy, Ireland and Portugal, have also implemented legislation on a local and national level which obliged building owners to install solar energy system on newly constructed buildings or to provide for a percentage of energy through renewable sources.

1.3 What we can learn from this

As evidenced above, various countries have taken steps towards more sustainable development by considering practical ways to increase the installation of solar panels and the use of renewable energy sources. This mainly includes enacting legislation to protect the solar rights of building owners investing in solar energy or imposing obligations on such owners to install renewable energy sources for the production of this type of energy.

Unfortunately, Malta has, up until the date of publication, not enacted any legislation aimed at protecting solar rights, despite a call for proposals on the matter having been made by Dr. Leo Brincat in 2008.²¹

With its climate, Malta is considered as having great potential to be a contributor towards increase in the use of solar energy in general. Therefore, it would be a step in the right direction to enact legislation aimed at protecting citizen's solar rights since this would encourage people to contribute towards a greener environment.

More importantly, the imposition of solar obligations, for example those implemented in Israel and Spain, can potentially change the population's mentality on sustainable development. Although the erection of further buildings will still continue to create congestion, obliging people to install solar energy systems can potentially create a fair balance since the buildings will be more energy-efficient and sustainable in the long-run due to a decrease in the use of fossil fuels for the satisfaction of energy demands.

²⁰ The version published in the Federal Law Gazette (Bundesgesetzblatt) 2008 I No. 36, p. 1658, published on 18 August 2008 is legally binding.

²¹ Times of Malta, *MLP calls for solar rights as a civil right* <<http://www.timesofmalta.com/articles/view/20080906/local/mlp-calls-for-solar-rights-as-a-civil-right.223776>> accessed 13 December 2016.

2. High-Rise

2.1 What is considered as high-rise or 'tall buildings'?

High rise refers to buildings that have many stories or are set higher than normal.²² Before delving into the effects of high rise, both positive and negative, one needs to consider some local background information on the subject as well as the definition of high-rise.

Malta is characterized by its religious traditions as may be evidenced by the substantial amount of parish churches and religious landmarks in various localities. These churches are considered as an integral part of Maltese identity and are an essential structural part of the Maltese skyline. Other traditional structures that our small island is well-known for are the clock towers built during the British era and the 19th and 20th century residential blocks which, although a minority, may be found in Balluta amongst other localities.

Although Malta was not affected by the block building boom as much as the United Kingdom and other EU countries, taller structures were built during the late 1900s due to the increase in the demand for floor space and later on, the demand for office and residential space. The 26-storey Portomaso tower and the residential blocks in Sliema are clear proof of this.

Nowadays, high-rise buildings, such as those found in Dubai and Singapore, are considered as a sign of modernization. In fact, some have argued that, the recently-approved high-rise projects in Imriehel and Sliema, symbolize 'Malta's economic and technological coming of age' as well as reflecting another chapter in Malta's post-independence economic history.²³ On the other hand, counter-arguments stipulate that these high-rise projects will be an eye sore and may affect landmarks and the traditional character of the Maltese skyline, which is part of our heritage as a civilization.

In light of the above, one notes that there is tension as to whether Malta should maintain its traditional landscape or else upgrade to a more modern port city characterized by high towers and buildings. Should Malta enhance its corporate image, namely emanating from its status in the financial services sector, or should it preserve its urban landscape and traditions, which plays an important role in attracting tourists towards the island?

When considering whether a building is to be deemed as high-rise or not, one needs to evaluate the country in which the building is being proposed. What may be deemed as a high-rise building in Malta may be considered as a medium-rise or low-

²² *English Oxford Living Dictionary*, <<https://en.oxforddictionaries.com/definition/us/high-rise>> accessed on 28 December 2016.

²³ James Debono, *Qui-si-Sana high rise a 'new chapter' for Malta, developer EIA states*, <http://www.maltatoday.com.mt/news/national/65783/quisisana_high_rise_tower_may_symbolise_new_chapter_for_malta_eia#.WGPWNhsrLIV> accessed on 28 December 2016.

rise building in other countries. The Planning Policy Guide on the Use and Applicability of the Floor Area Ratio (FAR) published by MEPA²⁴ in May 2014 provides a clear idea as to how high-rise is defined in the Maltese context.

The approved policy makes use of the term 'tall building' rather than high-rise. The two terms can be used interchangeably since they make reference to the same type of building. Section 4 of this document stipulates that a building is classified as a tall if it is more than 10 storeys high. This threshold shall also apply when existing buildings are extended. Moreover, for localities which allow additional levels below the ground level but above street level, it must be noted that the said levels shall not be taken into account when determining whether building is to be classified as tall or not. Buildings having less than ten levels shall be considered as medium-rise buildings.

According to the same policy document, high-rise buildings are only to be considered favourable in the appropriate locations identified in the document and each project involving high-rise must adhere to certain requirements on a case-by-case basis. This includes the amount of maximum allowable built floor space and volume, the requirement for open space, the maximum height, use and design and other impacts of tall buildings.²⁵

2.2 Criteria for the establishment of such buildings.

One of the major issues emanating from high-rise projects is their location, since although these types of buildings may portray the image of a modern society; they can ruin the picturesque views and skyline that are tantamount to Malta's culture and heritage.

In fact, the MEPA Policy Document recognizes these issues by highlighting that a gridlock of isolated tall buildings of different heights and design can potentially have an adverse effect on the way the skyline looks. Moreover, isolated and misplaced tall buildings, as opposed to carefully planned high-rise, which competes with an existing landmark, can also undermine the eligibility of urban areas. On a local scale, it is further confirmed that an ill-designed tall building may strip a town of its historical character and distinctiveness.

Despite the above-mentioned disadvantages, it may be established that carefully planned tall buildings can serve a number of functions:

1. This kind of development may provide floor space and public open spaces
2. They may act as landmarks and aid in making the form of urban areas legible

²⁴ Prior to the demerger.

²⁵ *A Planning Policy Guide on the Use and Applicability of the Floor Area Ratio (FAR)*, <http://www.mepa.org.mt/Documents/FAR_Policy-ApprovedMay2014.pdf> accessed on 28 December 2016.

3. They may stimulate further investment, particularly for international companies
4. They may help in the evolution of innovative building and environmental technology²⁶

In order to determine which locations in Malta would be best for the development of high-rise, MEPA based their analysis on a set of criteria which considered urban design, conservation and transport. These criteria were created without prejudice to other more detailed and specific plans for particular areas or locations.

The criteria to strategically determine where tall buildings would best be proposed are found in Section 7 of the Policy Document. According to the latter, a strategic location for high-rise buildings should:

1. Support the regeneration of commercial/employment urban centres within the Development Zone only;
2. Be areas generally not visually prominent, and located on the low lying (at a strategic level, interpreted to be broadly below the 25m contour), gently sloping, urban parts of the Islands with a statutory building height limitation of four floors or more as higher buildings in these locations would not compete with traditional townscapes;
3. Be well serviced or capable of being well serviced by public transport to reduce the need to travel by car;
4. Be away from residential priority areas, urban conservation areas and their settings or buffers as tall buildings are naturally alien to these low-rise, compact locations;
5. Be away from ridge edges and not interfere with views of protected areas, (such as Special Areas of Conservation (SACs), Special Protected Areas (SPAs), Areas of High Landscape Value (AHLVs) or Areas of Very High and High Landscape Sensitivity), and existing landmarks as tall buildings would prejudice the public enjoyment of the open countryside, the coast of setting of urban landmarks of local, national or international importance;
6. Not be located in Gozo;

A quick analysis of the above shows the importance that is afforded to the aesthetic and preservation of the current landscape as well as reducing congestion, with the areas considered to be suited for the construction of high-rise needing to be accessible or potentially accessible to public transport in order to reduce the use of motor vehicles on the road and thus, reduce traffic. It is interesting to note that Gozo is excluded from potentially hosting any of these tall buildings mainly due to its high landscapes.

²⁶ Ibid. p. 22.

In light of this, the general area surrounding and including Marsa and Gzira were identified as strategic locations for the construction of offices whilst the Qawra peninsula, Paceville and Tigne were deemed appropriate for developments relating to the tourism and leisure industry. In addition, Imriehel's potential as an employment hub as well as the updates to the locality's local development plan to include buildings higher than 14m has led to its status as a designated location ideal for the development of tall buildings.

2.3 Negative impact of such buildings.

During the last few months, a number of high-rise projects have been proposed, and eventually approved, by the PA in the designated locations for development as defined in the Policy Document. Amongst these one can mention the 40-storey hotel in Fort Cambridge and the Townsquare Project in Sliema, which proposes the construction of a shopping hall, residential car units and an underground car park as well as the construction of four towers in Imriehel.

In this section, we shall highlight some of the major concerns related to the construction of these buildings, with particular reference to congestion. With traffic being a major concern, it is not surprising that both the developers and the Planning Authority must acknowledge their obligation to take into account the adverse effects that high-rise development may have on congestion and the traffic situation in Malta. The construction of these buildings will without a doubt increase the number of cars passing from the area and the need for parking spaces.

For example, the proposed hotel in Sliema is estimated to increase the annual average daily traffic through Qui-si-Sana from 530 vehicles to 1,527 vehicles.²⁷ This means that a total of 6,000 additional cars will be passing through the area on a daily basis leading to further gridlock and congestion in a location which already suffers from severe traffic problems.

The same issue with regard to traffic was also underlined for the proposed high-rise development proposed in Imriehel where an estimated increase of 3,000 cars a day has been predicted. Despite this, it seems that the site of the project will only cater for 1,032 parking spaces, which when compared to the number of cars generated is less than half.²⁸ In fact, the Planning Authority has requested the developers to provide for more parking spaces, despite approving the application for this project.

²⁷ James Debono, 'Qui-si-Sana high rise a 'new chapter' for Malta, developer EIA states', <http://www.maltatoday.com.mt/news/national/65783/quisisana_high_rise_tower_may_symbolise_new_chapter_for_malta__eia#.WGPWNhsrLIV> accessed on 29 December 2016.

²⁸ Times of Malta, *High rises: Plea for good sense to prevail*, <<http://www.timesofmalta.com/articles/view/20160629/local/high-rises-plea-for-good-sense-to-prevail.617153>> accessed on 29 December 2016.

This is far from sustainable when taking into account the number of increasing cars on Maltese roads²⁹ and how dependent Maltese citizens are on their personal vehicles. In fact, the strategic location criterion of having the area accessible through public transport to decrease the need to travel by car seems futile. This is because Maltese people still prefer to make use of their car rather than public transport in order to travel. A change in mentality and attitude towards public transport is needed and albeit this being time consuming to implement, it will reap long-term benefits.

In addition, although high-rise development is beneficial for economic development, one must not overlook the effects that these kind of buildings may have on traffic and the environment, due to excessive use of cars and the increased air pollution that is associated with it.

The aesthetics of tall buildings are mostly based on sleek exterior and practical interiors with the use of lifts and other technology. This starkly contrasts with the traditional facades of other historical Maltese buildings which are an asset for the tourism industry.

In our opinion, although high-rise development showcases Malta's development in a number of industries, particularly the financial services industry, and provides an image of moving forward with the times, the buildings that form an integral part of our heritage may be undermined. This will result in the high-rise towers being an eye-sore for the general public, particularly tourists.

In fact, concerns have already been raised regarding the inclusion of the Tigne peninsula as a strategic location for high-rise buildings by the Rehabilitations Projects Office. The latter, responsible for protecting Valletta's World Heritage status, pointed out that further high-rise development in Tigne may affect the city's status as a heritage site since they can potentially alter its character. This may result in Valletta losing its prestigious status, which will definitely be a drawback. On the other hand, MEPA have pointed out that further construction in Tigne may actually improve the views from Valletta rather than ruining them.

A holistic study, and if possible a public consultation, would should be performed for each project to determine the effects that any development may have on a number of issues. This will give the opportunity for residents and other stakeholders, particularly environmental NGOs, to discuss their concerns and put forward any suggestions that can be considered by both the developers and the authorities. This should be considered for future projects and has the potential avoid unnecessary conflict in the run-up of the project.

²⁹ Times of Malta, *38 new vehicles a day on Malta's roads!*, <<http://www.timesofmalta.com/articles/view/20161014/local/38-more-vehicles-a-day.627947>> accessed on 29 December 2016.

3. The Planning Authority

3.1 The Paceville 'Master-Plan'

Development comes at a huge cost. Cities are now confronted with a rapidly changing economy giving rise to new economic activities which are not always sustainable. Malta is no exception. 'People seem to think that Malta should stop the clock and remain where it as far as physical development is concerned – something that is impossible in a healthy economy'.³⁰ The UK Planning and Compulsory Purchase Act proposed that:

“planning authorities must prepare a plan for their area to be known as a local development plan.”³¹

Recently, the Planning Authority published for consultation purposes the draft of the €300 million Paceville Master Plan – technically called the Paceville Integrated Development Framework. The masterplan addresses several key issues. Primarily, 'the plan aims to make access to the waterfront easier, St George's beach more prominent and create new public spaces'.³²

The Planning Authority appointed international consultants Mott MacDonald in association with Broadway Malyan to 'draw up this master plan to accommodate future development and act as a catalyst for the regeneration of the area and meet the requirements of existing and future residents and visitors'.³³

In addition, the PA says that it envisages Paceville 'becoming Malta's prime coastal location and the master plan aims to enhance the three pillars of neighbourhood development – urban realm, transport, and infrastructure – while transforming Paceville beyond existing planning parameters. This is not a simple task and – as the Planning Authority itself states – key interventions are required to achieve this visionary transformation'.³⁴

The Paceville Master plan has caused quite a stir and with a good reason. Some fear that Paceville will become 'an ever denser concrete zone', paving the way

³⁰ Michael Falzon, *The Dubai-ification of Paceville* (*Maltatoday*, 4 October 2016) <<http://www.maltatoday.com.mt/printversion/70163/#.WF5v1XmQzIU>> accessed 01 December 2016.

³¹ Planning and Compulsory Purchase Act 2004 (UK) Chapter 5 Article 62 (1) <http://www.legislation.gov.uk/ukpga/2004/5/pdfs/ukpga_20040005_en.pdf> accessed 01 December 2016.

³² Gabriel Schembri, *Watch: Planning Authority launches a new €300 million master plan for Paceville* <<http://www.independent.com.mt/articles/2016-09-22/local-news/Watch-Planning-Authority-launches-a-new-300-million-masterplan-for-Paceville-6736164142>> accessed 01 December 2016.

³³ Michael Falzon, *The Dubai-ification of Paceville* (*Maltatoday*, 4 October 2016) <<http://www.maltatoday.com.mt/printversion/70163/#.WF5v1XmQzIU>> accessed 01 December 2016.

³⁴ Ibid.

for more high rise buildings. 'The master plan for the area is set to accommodate a number of high-rise buildings'.³⁵ Around nine high-rise buildings are proposed. As a result, this master plan has been dubbed by some as 'the Dubai-ification proposal for Paceville'.

Public concern is mounting and no wonder. Professor Deidun remarked that 'the spectre of land reclamation has reared its head'.³⁶ Proposal for site 6 – Portomaso; has sparked a frenzied backlash against 'a new peninsula – created through land reclamation proposed in front of Portomaso in St Julian's to host residential units and a tower'.³⁷ Although the proposed peninsula is in the Paceville master plan, the word 'land reclamation' appears once, towards the end of the hefty 234-page document. This newly created land would sit next to marine special area of conservation west of the site. The total developable floor space proposed is 234,000 square metres – almost the size of the entire White Rocks complex.

Development would comprise residential units over 50 per cent of the land, hotels on 44 per cent, offices on five per cent and 'other' using one per cent'.³⁸ In 2014, Portomaso was given the green light to develop 46 bungalows around an artificial lagoon. Deidun added that 'Portomaso has not yet satiated its hunger for land. The only difference this time round is that the applicant had to come with a major constraint – availability of land'.³⁹

Din l-Art ħelwa, (a non-governmental, non-profit, voluntary organisation) stressed during an earlier consultation on the partial review of the North Harbour Local Plan, the ecological impact of land reclamation in the adjacent seas.

Din l-Art ħelwa stated that 'the North Harbour areas are characterised by Posidonia fields which are protected by law.' Deidun added that 'Malta has a poor track record in enforcing the use of mitigating measures such as silt curtains'.⁴⁰

Today's strict environmental protection laws require industry to take all necessary precautions to prevent contamination. Silt curtains are protective barriers used in marine environment to control pollution caused by suspended sediments, such as silty soil or stone dust.

By confining the sediment to specific area, the rest of the waterway is protected from the damaging effects of pollution. In many areas of the world, the use of silt curtains is mandated by governments to control pollution of the waterways. In the United States, for example the Environmental Protection Agency (EPA) and the Clean Water Act have been developed to control the pollution of natural resources,

³⁵ Caroline Muscat, *New land for high-rise: plan to create new peninsula at St Julian's comes under fire* (Times of Malta, 2 October 2016) 20.

³⁶ Alan Deidun, *Reclaiming land for even more luxury apartments* (Times of Malta, 2 October 2016) 41.

³⁷ Caroline Muscat, *New land for high-rise: plan to create new peninsula at St Julian's comes under fire* (Times of Malta, 2 October 2016) 20.

³⁸ Ibid.

³⁹ Alan Deidun, *Reclaiming land for even more luxury apartments* (Times of Malta, 2 October 2016) 41.

⁴⁰ Ibid.

including waterways. The Clean Water Act mandates the use of silt curtains as a barrier to contain and reduce pollution caused by construction activity and shoreline stabilization procedures.

That implies that the sea is a natural resource and a common heritage of mankind. It is laudible to remark that Slovenia amended its constitution to protect its abundant clean water supplies from corporate greed. Such an amendment made access to drinkable water a fundamental right for all citizens.

Citizens from across the EU and Europe have welcomed this move. This new article recognizes the Human Right to Water. That being said, certain articles within the Civil Code give us an indication to water's importance from a legal point of view also. This is made clear by article 450, which grants the right of watercourse. Water is the source of life. It goes without saying that water pollution should be never tolerated and stringent measures are to be adopted to protect the seabed. The (2000) Water Framework Directive, closely linked to the Marine Directive, sets a goal of achieving Good Status for all EU surface and groundwaters, tying with it the goal of



Good Environmental Status under the Marine Strategy Framework Directive'.⁴¹

⁴¹ European Commission, *Our Oceans, Seas and Coasts (Environment)* <www.ec.europa.eu/environment/marine/interaction-with-other-policies/index_en.htm> Accessed on 15 December 2016.

The Water Framework Directive 2000/60/EC of the European Parliament sets a goal of achieving good status for all EU surface; something which all member states have to adhere to and achieve good qualitative and quantitative status of all water bodies (including marine waters up to one nautical mile from shore) by 2015. Marine conservation is of paramount important. Sea beds home a large variety of fauna and flora. Deidun remarks that the mouth of Spinola bay, which houses the proposed site in question, is renowned for its populations of the Noble Pen Shell (*Pinna nobilis*).

3.2 Extension of the Public Consultation

The proposal of a masterplan for an entire locality is an innovative concept for the Maltese Islands - one which would be met with a variety of different opinions. Case in point, one finds the recently proposed Paceville masterplan. Such a masterplan is intended to considerably alter the area; from a central commercial and social hub, characterised by narrow streets, inadequately sized pavements and irritatingly tight parking spaces (if any would even be left by the time one arrives), it would be set to become a prime seafront resort, suitably planned and easier to reach.

Such a project would be expected to affect a considerable part, if not all of, the population of residents of the area. A masterplan consists in the total regeneration of an entire area or locality, and thus will in more ways than one affect the livelihood of residents. Thus, as is a general procedure in modern democratic societies, the public is consulted about such an issue which is guaranteed to have an impact on their lives. It is a citizen's right, as it is his duty, to participate and make his voice heard in such consultations.

The first public consultation regarding the masterplan, held on the 7th of November 2016 at the Le Meredien Hotel in St. Julian's, aimed at bringing together the residents of the affected areas in order to give them the floor to voice their opinion.⁴² It was unfortunately characterised by sudden bursts of anger from attendees who opposed the plan. Concern was expressed by long time residents, activists and small business owners. The original deadline for interested parties to communicate their opinions with the planning authority was set for the 4th of November 2016, but was subsequently pushed up to the 25th of November 2016, after the authority was called upon by the Malta Developers' Association.⁴³ The

⁴² Julian Bonnici, *Public consultation on Paceville master plan dominated by jeers from angry crowd* (*The Independent*, 7 November 2016) <<http://www.independent.com.mt/articles/2016-11-07/local-news/Public-consultation-on-Paceville-master-plan-dominated-by-jeers-from-angry-crowd-6736166293>> accessed 15 December 2016.

⁴³ Miriam Dalli, *Paceville Masterplan Consultation Extended by Three Weeks* (*Malta Today*, 20 October 2016)

masterplan is accessible from the planning authority's website, and anyone was granted the opportunity to voice one's opinion.

The planning authority had since received substantial feedback from interested parties and stakeholders, and thus saw it fit to extend the consultation until the 9th of December. This was due to the authority's effort to accommodate individual meetings with each applicant.⁴⁴ In this regard, the authority is displaying a significant effort to hear all stakeholders, as is the main idea of a public consultation. The extension of a public consultation, especially of a project of this calibre, offers the interested public more time for examination of the proposal. In fact, as held by the Developers' Association, the first extension was clearly requested due to the fact that the master plan itself is highly detailed and requires a thorough examination by experts in the field in order for adequate opinions to be given.

Despite the positive impact of such an extension, wherein further opportunity is granted for better analysis of the subject of the consultation, it could also however lead to a stalemate in the already arduous and inconceivably complicated process of going through the planning of such a complex project. It is however arguable that in this case, the extension of the consultation is rightly granted as it had previously been stated by an architect and a student of architecture that the right to public consultation was only granted following the completion of the plan, whereas common European practice as well as the Strategic Environmental Assessment Regulations (2010) dictated that a consultation is held during the process of designing of the plan, and not after.⁴⁵ Thus, the public is consequently rightly allowed more time to study, discuss and even criticise such a project where absolutely necessary.

<http://www.maltatoday.com.mt/environment/townscapes/70797/paceville_masterplan_consultation_extended#.WFPxvfkrlIU> accessed 15 December 2016.

⁴⁴ TVM News, *Public Consultation on Paceville Master Plan is Extended Again* (TVM News, 24 November 2016) <<http://www.tvm.com.mt/en/news/public-consultation-on-paceville-master-plan-is-extended-again/>> accessed 15 December 2016.

⁴⁵ Julian Bonnici, *Public consultation on Paceville master plan dominated by jeers from angry crowd* (*The Independent*, 7 November 2016) <<http://www.independent.com.mt/articles/2016-11-07/local-news/Public-consultation-on-Paceville-master-plan-dominated-by-jeers-from-angry-crowd-6736166293>> accessed 15 December 2016.

4. Pollution and comments on the Paris Agreement

4.1 Introduction

Developed world sees huge increase in emissions and air pollution. Research findings indicate that air pollution carries significant risks for human health and the environment. On the report of WHO (World Health Organization), air pollution has become the world's single biggest environmental health risk, linked to around 7 million – or nearly one in eight deaths in 2012. Turkmenistan has the highest death rate connected to outdoor air pollution. China is the country with the sixth-highest death rate linked to air pollution. The situation in our continent is far from being rosy. 'Air pollution is causing around 467,000 premature deaths in Europe every year, the European Environment Agency (EEA) has warned'.⁴⁶ General Assembly resolutions 37/7 of 28 October 1982 on the World Charter for Nature and 45/94 of 14 December 1990 on the need to ensure a healthy environment for the well-being of individuals have played a significant role in raising awareness on environmental issues. These were followed by various declarations and conventions; Stockholm Declaration on the Human Environment, Rio Declaration on Environment and Development, Rio Convention on Climate Change and Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters.

'According to the EEA's Air quality in Europe – 2016 report, the toxic gas nitrogen dioxide (NO₂) – released by vehicles and central heating boilers-has an impact equivalent to 71,000 premature deaths a year. Ground-level ozone (O₃) is also killing people – an estimated 17,000 annually in the EU.'⁴⁷ The Union of Concerned Scientists, remarked that transportation in the U.S contributes to more than half on the carbon monoxide and nitrogen oxides, and almost a quarter of the hydrocarbons emitted into the air. 'People in urban areas are especially at risk, with around 85% exposed to fine particulate matter (PM_{2.5}) at levels deemed harmful by the World Health Organization (WHO)'.⁴⁸

PM, particle pollution, is a mixture of solids and liquid droplets floating in the air. Some particles are released directly from a specific source, while others form in complicated chemical reactions in the atmosphere. PM 2.5 are 2.5 micrometres in diameter or smaller, and can only be seen with an electron microscope. Fine particles are produced from all types of combustion, including vehicles, power plants, residential wood burning, forest fires, agricultural burning and some industrial processes. PM particles contain smoke, dust, soot, metals, nitrates, sulphates, water and rubber from tyres.

⁴⁶ BBC, Air pollution causes 467,000 premature deaths a year in Europe (*BBC*, 23 November 2016) <<http://www.bbc.com/news/world-europe-38078488>> accessed 30 November 2016.

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

Particles come in a wide range of sizes. Particles less than or equal to 10 micrometres in diameter are so small that they can get into the lungs, potentially causing serious health problems. Ten micrometres is less than the width of a single human hair. People with heart or lung diseases, older adults and children are most likely to be affected by particle pollution exposure. However, even if you are healthy, you may feel temporary symptoms if you are exposed to high levels of particle pollution. Numerous scientific studies connect *particle pollution exposure* to a variety of health issues. These include irritation of the eyes, nose and throat, coughing, chest tightness and shortness of breath, reduced lung function, irregular heartbeat, asthma attacks, heart attacks and premature deaths in people with heart or lung disease.

The European countries with the worst levels of PM2.5 are Bulgaria, Poland and the Czech Republic. A new research suggests pollution could be contributing to brain damage. Whereas another research suggests air pollution in China shortens lifespan. In fact, according to researchers people in Northern China are dying five years earlier on average, because of air pollution. 'Children are most susceptible to illness from air pollution. A major study conducted over six years found that children living in highly polluted parts of cities have up to 10% less lung capacity than normal, and the damage can be permanent'.⁴⁹

4.2 How does Malta Fare?

Malta ranks in the tenth place position as the most densely populated country in the world. Research findings indicate that in Malta there are over 1,300 people per square kilometre. The tables below display the populations per sq. km of the ten most densely populated countries in the World.

Top Ten Most Densely Populated Countries (2014)			
Rank	Country	Population 2014	Population density
1	Macau	NA	18,568/km ² (48,092/sq mi)
2	Monaco	37,620	18,812
3	Singapore	5.470 million	7,736
4	Hong Kong	7.242 million	6,897
5	Gaza Strip	1.9 million (est.)	5046/km ² (13,069/sq mi)
6	Gibraltar	NA	4,328/km ² (11,320/sq mi)
7	Holy See (Vatican City)	842 (est.)	1877/km ² (4,859/sq mi)
8	Bahrain	1.362 million	1,769
9	Maldives	401,000	1,337
10	Malta	427,400	1,336

⁴⁹ BBC, *Air pollution causes 467,000 premature deaths a year in Europe*
<<http://www.bbc.com/news/world-europe-38078488>> accessed 30 November 2016.

Table 1.1 Top Ten most densely Populated countries.⁵⁰

Rank	Country	Population density (number of people per km ²)
1	Macau	20848.01
2	Monaco	15254
3	Singapore	7987.52
4	Hong Kong	6442.65
5	Gaza Strip	5045.5
6	Gibraltar	4490
7	Holy See (Vatican City)	1913.64
8	Bahrain	1729.06
9	Maldives	1320.79
10	Malta	1305.87

Table 1.2 Top Ten most densely Populated countries.⁵¹

'The Maltese road network is bloated. Malta has one of the highest rates of car density in the world, rivalling some of the big cities such as London or Paris.'⁵² NSO (National Statistics Office) announced that the number of registered and licensed vehicles on Maltese roads is on the rise and such figures are expected to continue to increase at an alarming rate. 'The world Bank puts it in 9th place with 693 vehicles per 1000 inhabitants, while the US, famously considered as one of the most car dependent states, is in 3rd place with 797 vehicles. A less quoted but possibly more important statistic is the number of cars per square kilometre: the US has 25 vehicles; Malta packs a staggering 991.'⁵³

Verily, 'at the end of December last year, the stock of licensed motor vehicles stood at 346,918. Of these, 79.4 per cent were passenger cars, 13.7 per cent were commercial vehicles, 5.8 per cent were motorcycles, while buses and minibuses accounted for less than one per cent'.⁵⁴ A new World Health Organisation air quality study published in October 2016 shows that Malta is among the 92% of the World's population that lives in places where air pollution levels exceeds the limits recommended by the organisation. The recommended limit in terms of median fine

⁵⁰ World Fact book, <<https://www.cia.gov/library/publications/the-world-factbook>>.

⁵¹ Index Mundi, <<http://www.indexmundi.com/g/r.aspx?v=21000&t=10>> accessed 05 December 2016.

⁵² University of Malta 'To drive or not to drive' (*University of Malta*) https://www.um.edu.mt/assets/pdf_file accessed 16 December 2016. 13.

⁵³ Ibid.

⁵⁴ The Malta Independent, *Number of cars on Maltese roads continues to rise: 0.7% more in 2015* (Independent, 19 January 2016) <www.independent.com.mt/articles/2016-01-19/local-news/Number-of-cars-on-Maltese-roads-continues-to-rise-0-7-more-in-2015-6736151957> accessed 25 November 2016.

part particulate matter is 10 micrograms per cubic metre and Malta's average rate comes in at 14 micrograms.

4.3 Paris Agreement

The 1997 international treaty Kyoto Protocol to the United Nations Framework Convention on Climate Change was a landmark legal accomplishment. It established reduction targets, limiting the amount of emissions across the six main greenhouse gasses that contribute to global warming. This was achieved by what is known as 'assigned amount' which allocate emission targets for the parties in question.

According to the Intergovernmental Panel on Climate Change, established by the United Nations Environment Programme and the World Meteorological Organization in 1988, the long-term effects of global warming would include a general rise in sea level around the world, resulting in the inundation of low-lying coastal areas and the possible disappearance of some island states; the melting of glaciers, sea ice, and Arctic permafrost; an increase in the number of extreme climate-related events, such as floods and droughts, and changes in their distribution; and an increased risk of extinction for 20 to 30 percent of all plant and animal species. According to the Intergovernmental Panel on Climate Change, established by the United Nations Environment Programme and the World Meteorological Organization in 1988, the long-term effects of global warming would include a general rise in sea level around the world, resulting in the inundation of low-lying coastal areas and the possible disappearance of some island states; the melting of glaciers, sea ice, and Arctic permafrost; an increase in the number of extreme climate-related events, such as floods and droughts, and changes in their distribution; and an increased risk of extinction for 20 to 30 percent of all plant and animal species.

The first-ever legally binding global climate deal, known as The Paris Accord set out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C. It is noteworthy to mention that the Paris Agreement is a bridge between today's policies and climate-neutrality before the end of the century. It comes at a time of continued heightened concern over hazardous pollutants and greenhouse gases that contribute to global climate change and premature deaths.

Horizontal Congestion

5. Reducing cars on our roads

5.1 An introduction to the problem

By 2014, Malta had already clocked up a record number of 781 cars per 1,000 residents.⁵⁵ The Islands have one of the highest road density in the entire European Union, with an average of 762km of roads per 100 square kilometres.⁵⁶ The latter, coupled with Malta also having one of the highest population densities in the whole of Europe, are the main issues of congestion on Maltese roads.

The 2016 Transport Malta Master Plan has concluded, from survey studies, that the Maltese Islands have a very “car-oriented”⁵⁷ road design, resulting in an infrastructure which hardly favours the use of two-wheelers (motorcycles and bicycles) or even walking. From 1990 up until 2014, the weekday average car occupancy figures have decreased from 1.33 persons per car to 1.25 persons. This, of course, comes as no surprise when analysing the 2010 National Household Travel Survey, which concluded that “74% of all internal trips are undertaken using private passenger cars”, a figure much higher than the results obtained from other small cities in Europe with which the survey compared Malta. For example, in Copenhagen, with a population of 562,000, only 33% use a car for internal trips.⁵⁸ This is mainly due to a high percentage of persons who use public transport and cycle or walk (67%) in the latter city, whereas in Malta, the corresponding percentage lies at a meagre 23%.⁵⁹ Whilst a journey by car takes an average of 14 minutes, a bus journey (including walking to and from bus stops, waiting time and bus transfers) would take 40 to 45 minutes. Free, unrestricted parking in most central localities contribute to the lack of public transport use.⁶⁰ Lanes dedicated to public transportation are few (only found in Sliema/Gżira, Msida, Floriana and Marsa), and abuse of their use by private car owners is rife.

⁵⁵ Transport Statistics 2015 - National Statistics Office Malta (2015) <https://nso.gov.mt/en/publications/Publications_by_Unit/Documents/B3_Environment_Energy_Transport_Agriculture_Statistics/Transport_Statistics_2015.pdf> .

⁵⁶ Transport Malta, ‘Transport Master Plan 2025’, [2016] European Regional Development Fund 2007-2013.

⁵⁷ *Ibid.*

⁵⁸ National Household Travel Survey 2010 - Transport Malta media-library/files/NHTS2010%20Report.pdf_20120502091559.pdf>.

⁵⁹ *Ibid.*

⁶⁰ Transport Malta, ‘Transport Master Plan 2025’, [2016] European Regional Development Fund 2007-2013.

It is highly apparent that the Maltese commuting population are driven to use of private passenger vehicles, rather than the more viable and economically friendly options of walking, cycling, or use of motorbikes or public transport. The reasons are various, and include the lack of proper infrastructure (as aforementioned), the lack of education and awareness for the safety of cyclers and motorcyclists who face huge risks riding on Maltese roads, and the lack of reliability of the Maltese public transport sector during rush hour.

The Addolorata junction, Hamrun bypass, Santa Venera tunnels and Tal-Qroqq junction comprise of only 4% of the national road network, however carry 38% of daily vehicular mobility (Northern Harbour Areas).⁶¹ Apart from the excessive traffic jams (rush hour or not), the huge problem of noise and air pollution in highly congested areas also exists. The following sections look at comparative studies with legal policies and incentives applied by other nations, and how they can be applied to the local scenario to better improve the traffic situation on the Islands.

5.2 Innovative vehicle regulation in Singapore

The Government of Singapore has implemented an innovative system in order to manage road congestion in the centre of the city, particularly during the highly problematic peak hours of road congestion. The ERP - Electronic Road Pricing - is a system whereby a motorist is charged upon use of particular roads in congested areas during peak hours. This proved to be advantageous as prior to the system's implementation, drivers required pre-bought licences to be allowed to drive into high congestion areas in the city centre. The main focus of this system aimed at reducing the amount of vehicular traffic in these areas, whilst also encouraging motorists to make use of alternative routes across the vast Singaporean road network.

The fully automated ERP system operates at different times and varies in its pricing rates according to the time and road or area. Each car purchased in Singapore is legally required to have an In-Vehicle Unit (IU) installed on the windscreen (or on motorbike handlebars), in which the driver inserts a cash card. Through the use of sensors installed in all ERP overhead gantries, a charge is deducted automatically from the card.

Each set of ERP systems consists of two overhead gantries placed a few metres apart from each other - the first gantry's antennae communicate with the IU of approaching vehicles, whilst a camera photographs the licence plates of any vehicles without a valid IU. The deduction from the CashCard is confirmed by antennae on the second gantry unit, where an optical sensor also detects the actual

⁶¹ Keith Micallef, *Cars Outpacing Population Growth*, <<http://www.timesofmalta.com/articles/view/20161027/local/cars-outpacing-population-growth.629178>> accessed on 27 October 2016.

passage of the vehicle itself. Any invalid passage (if, for instance, the CashCard contains no credit) is recorded, along with the image of the vehicle licence plate, and is passed on to the control centre. Data of valid transactions are stored for a day to issue a final charge for the ERP control centre to claim from the CashCard operator, whilst violation data is held for six months as they may be required if drivers challenge an alleged violation.

Interestingly, charges not only vary according to time and place, but also according to the class of vehicle (private cars, taxis, motorcycles, goods transport vehicles, etc.). Charges are determined according to the vehicle's specific PCU (passenger car unit), which serves as a multiplier for the ERP charge. IUs are colour coded to avoid mismatching of units. Emergency vehicles are exempt from these charges. However, they are still required to have an IU installed as otherwise, they would be charged as a violating vehicle.⁶²

The gantries seem to work effectively well, without having the drivers feel obliged to slow down upon approaching a gantry anymore thanks to the efficient short-wave communication between the antennae and IUs. By 2004, 99% of vehicles purchased and registered in Singapore had IUs installed, and one must specifically request a car dealer if he does not wish to have one installed in a vehicle he is purchasing.

Charges are revised every three months, in order to maintain particular speeds for certain classes of roads, with the charge calculated inversely according to the speed. They are measured at half hour intervals, and where the average speed is higher than the established speed range, charges are reduced, and vice versa. CashCards must have sufficient balance inside them upon passing through gantries, and violations must be paid along with a \$10 administration fee. Failure to pay results in further fines, which may toll up to \$1000 or even 30 days' incarceration.

However, problems associated with such gantries arise in cases where there are substantial price hikes between certain time periods, and drivers either speed up or slow down to avoid paying more. Further dangers are caused by drivers who wait by the side of the road for the change in pricing, however they are monitored by street cameras. A conclusive report was drawn up in February 2004, around 5 years after the implementation of the ERP system in Singapore.⁶³ It highlighted the changes which were expected in the behavioural planning of motorists' journeys; paying ERP and benefitting from smoother traffic conditions, changing journey times and routes to incur lower or no charges, and even switching towards the use of public transport.

⁶² Singapore Land Transport Authority, 'Electronic Road Pricing (ERP), <<https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/managing-traffic-and-congestion/electronic-road-pricing-erp.html>> accessed 13 November 2016.

⁶³ A. P. Gopinath Menon, Chin Kian-Keong, 'ERP in Singapore - what's been learnt from five years of operation?' (Singapore Land Transport Authority) <<https://www.lta.gov.sg/ltacademy/doc/ERP%20in%20Singapore%20-%205%20years.pdf>> accessed 13 November 2016.

Another incentive introduced by the Government of Singapore, aimed at reducing the city island state's dense car population is the Certificate of Entitlement (COE) for ownership of vehicles within the nation. It is a particularly stringent measure, when considering that it is aimed at limiting the number of persons who can purchase and own a car in Singapore.

The mechanism concerning the application for a COE is through a system of bimonthly competitive bidding. The period generally spans over three days, from Monday to Wednesdays.⁶⁴ Bidders submit the maximum amount they are willing to pay for a COE for their particular class of vehicle;⁶⁵ this is followed by an upward revision of bids, until the number of bids left meets the Vehicle Quota, which is determined and set every three months for each particular vehicle category. The last unsuccessful bid is therefore the determined cost⁶⁶ of a COE for that particular bidding period. Once the reserve price rises above one's bid, then it is out of the running. Nonetheless, one may opt to revise one's bid and raise it to retain one's chance to obtain a COE (bids may never be revised downwards), as bidders are allowed to access and monitor the current COE prices. Once the exercise is complete, COEs are granted to those whose bids are above or equal to the established reserve price, the latter referred to as the Quota Premium - the cost of a COE for that particular exercise.

Administrative fees apply upon each application or subsequent revision of bid, and, for each bid, a deposit is deducted from one's personal bank account.⁶⁷ Unsuccessful bids will consequently have their deposit refunded. The COE allows a person to use his vehicle on Singaporean roads for a maximum of 10 years. Upon expiration, one may opt to renew one's COE by paying the PQP (Prevailing Quota Premium)⁶⁸ for a period of 10 years, or for 5 years by paying half of the PQP. Rebates may be granted if a vehicle is de-registered prior to COE expiration.

The purchasing of a vehicle in Singapore therefore generally results in highly inflated overall costs. To the original price at which the vehicle is purchased, one must add a Registration Fee of S\$140 (c. €90), and calculate the cost of an Additional Registration Fee (ARF) of 100% on the first S\$20,000 (c. €13,300), 140% on the next S\$30,000 (c. €19,800) and 180% on any remaining value above S\$50,000 (c. €33,000). To this, one must add a road tax, which is calculated according to the car's cylinder capacity (which may run from about S\$400 (€260) to S\$700 (€460) for most average sized cars).⁶⁹ A final addition of the price of the COE plus a 20% excise duty

⁶⁴ Such periods are amended accordingly when these days happen to fall on public holidays.

⁶⁵ NB. Once a bid is submitted, it may not be withdrawn.

⁶⁶ This is also referred to as the 'reserve price'.

⁶⁷ Deposits are S\$200 for Category D vehicles (motorcycles) and S\$10,000 for all other categories.

⁶⁸ This PQP is a moving average, calculated on the Quota Premium for the respective vehicle category in the previous three months.

⁶⁹ An annually increasing Road Tax surcharge is computed to a vehicle's Road Tax if it 10 or more years old.

on the customs value (cost of freight, handling and insurance) of the vehicle⁷⁰ must be calculated to reach the final price one has to pay to purchase a vehicle in Singapore.⁷¹

5.3 Tallin Public Transport Experiment

5.3.1 Introduction to the Concept of Free Public Transport.

Tallinn, the capital city of Estonia, is a highly commercial city. Having a population of over 440,000,⁷² it is the centre of Estonian politics and culture, and is an important hub in the international financial industry. The medieval Old Town of the city is highly preserved and is listed as a UNESCO World Heritage Site, thus attracting tourists in their thousands each year. Thus, where a city is such a significant and prominent economic hub, there is bound to be considerable public transit, and many cities and nations across the globe are feeling the brunt of the rising popularity of private car ownership, which causes extensive congestion in city streets in densely populated areas. Upon independence from the USSR in 1991, the city has experienced a rapid increase in private car ownership, and 2012 statistics read that in Tallinn, there are 425 cars per 1,000 inhabitants.⁷³

Therefore, owing to the pressing need to shift citizens' mentality from one of total dependency on one's private car to opting for public transport. An increase in the use of the latter will reduce congestion on city streets, consequently allowing the swifter operation of public transit, besides other positive environmental and health impacts.

In 2010, a survey issued by the City of Tallinn regarding the public transport showed that Tallinn residents (49%) were most unsatisfied with the pricing.⁷⁴ In March 2012, a referendum was held in Tallinn, wherein residents were asked whether or not they support the idea of free public transportation within the city. As a result, 75% of voters showed their approval for the incentive. The new - and reasonably daring - policy was fully introduced in the beginning of 2013, and applied to all forms of public

⁷⁰ Singapore Customs - Duty Rates (Cars) <<https://www.customs.gov.sg/businesses/importing-goods/importing-dutiable-motor-vehicles/duty-rates>> accessed 17 November 2016.

⁷¹ Singapore Land Transport Authority, Cost of Owning a Vehicle; Tax Structure for Cars <<https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/owning-a-vehicle/costs-of-owning-a-vehicle/tax-structure-for-cars.html>> accessed 14 November 2016. See also Expat Singapore, 'Once You're Here - Costs of Owning a Car' <<http://www.expatsingapore.com/content/view/1152>> accessed 12 November 2016.

⁷² Information was obtained from 'Visit Tallinn - Quick facts about Tallinn and Estonia'. Data was obtained in September 2016. 'Quick facts about Tallinn and Estonia', <<https://www.visittallinn.ee/eng/visitor/plan/good-to-know/tallinn-and-estonia>> accessed on 12 November 2016.

⁷³ Galey, Derek, *License to Ride: 'Free Public Transportation for Residents of Tallinn'* [2014] Critical Planning, 19, 23.

⁷⁴ Galey, Derek, *License to Ride: 'Free Public Transportation for Residents of Tallinn'* [2014] Critical Planning, 19, 19.

transport in the city, including buses, trams and trains within the city limits. The city aimed at encouraging the public to shift to the use of means of public transit, whilst concurrently broadening mobility limits of low income communities. One of the main aims, however, was to increase the municipal tax income in Tallinn.⁷⁵ FFPT (fare-free public transport) is only made available to citizens of Tallinn, and, prior to the introduction of this incentive, many people who had moved to the city had remained registered as residents of their native municipality, and thus would continue paying taxes to the latter. With the introduction of FFPT, a person who resides in Tallinn who wishes to make use of this incentive must register as such. Consequently, their payable taxes would be directed to the municipality of Tallinn.

5.4 Problems which may arise.

However, such an incentive doesn't fall short of its own shares of problems. The use of the term FFPT ('fare-free' - rather than simply 'free' - public transport) is crucial, as running expenses must still be compensated from other sources of public revenue. They also manage the balance between supply and demand, discouraging short trips, which consequently results in overcrowding.⁷⁶

A similar experiment was begun in the town of Aubagne, France, wherein 80% of the surveyed passengers agreed that this incentive resulted in a more "convivial" experience of community life.⁷⁷ UCLA has concluded that incentivising in FFPT equates the service with public schooling and healthcare, libraries, parks etc.⁷⁸ Mass transit within city limits has become an essential element of modern cosmopolitan life, and it has been suggested by UCLA that it should be considered as a citizens' right within his city or town of residence to have access to free public transportation. One must consider that, owing to the increasing sizes of cities today, access to places of work, to essential services such as healthcare and education, along with access to the centre of social life, is not always accessible on foot. Taking into consideration that many people do not have sufficient financial means to support themselves, let alone own private modes of transportation, it is conclusive that there is sufficient legal basis for fare-free public transportation to be considered as a basic right of citizens.

⁷⁵ See Sulev Vedler, *Free public transit in Tallinn is a hit with riders but yields unexpected results*, (Citiscope, 27 January 2014) <<http://citiscope.org/story/2014/free-public-transit-tallinn-hit-riders-yields-unexpected-results>> accessed 11 November 2016.

⁷⁶ Public transport planners prefer to have a constant ridership along the whole route, rather than short-trip passengers (Galey, Derek, *License to Ride: 'Free Public Transportation for Residents of Tallinn'* [2014] *Critical Planning*, 19).

⁷⁷ Galey, Derek, *License to Ride: 'Free Public Transportation for Residents of Tallinn'* [2014] *Critical Planning*, 19, 21.

⁷⁸ *Ibid.*

The latter has been a driving force for the implementation of the FFPT system in the city of Tallinn. As highlighted by the transport authorities, it was partly aimed at increasing the mobility opportunities for particular low-income communities in the city.

Following the introduction of FFPT in Tallinn, there has been a meagre 3% increase in rider usage, part of which is attributed to the simultaneous improvement in the service itself. Nonetheless, Tallinn already had a high percentage of daily public transport usage when compared to other cities where FFPT was implemented. In Malta, daily public transport use is at a mere 11%, the 5th lowest percentage of use from all 28 EU countries, whereas private car usage is amongst the highest, with daily use of motorbikes or bicycles trailing behind at a meagre 2% and 1% respectively.⁷⁹ However, how much of an effect would the implementation of FFPT have on changing the mentality of the Maltese commuting population?

According to the results drawn up in the EURBAR, over half of the surveyed Maltese believe that travelling costs are a main issue, however, the same statistics conclude that the Maltese are the least likely, out of all 28 Member State's citizens, to believe that lower public transport fares would serve to ameliorate the situation of public transit.⁸⁰ However, owing to the lack of options available in the ambit of Maltese public transport and the lack of respect granted to two-wheelers by countless drivers (apart from the lack of favourable road gradients for self-propelled two-wheelers), it is conclusive that if there is to be a rapid change in the situation of Maltese road congestion, the only viable (and relatively safe) alternative available to the majority of the public must be presented as an appealing alternative.

Some may not be so keen to pool together and contribute to the greater good, so it may prove to be strenuous to promote public transport as a basic right in a democratic society when the will to resort to it from private modes of transportation is close to zero. In fact, an FFPT incentive in the city of Templin⁸¹ did result in a shift from car usage, but the vast majority (over 70%) of shifts were from biking and walking.⁸² Another trial in Hasselt also recorded an increase in users, however shifts were once again substitutions for walking and cycling in the majority.

Thus; can such a project be embarked upon in a society where the majority depends on private car usage when results have many times proven that car usage is rarely affected by such incentives? The possibility of success is slim - Maltese commuters are evidently not looking for a change in fares.

⁷⁹ Special Eurobarometer 406: *Attitudes of European towards Urban Mobility* (Report, European Commission), December 2013.

⁸⁰ Only 32% of the surveyed Maltese believe that lower fares will improve the situation; Special Eurobarometer 406: *Attitudes of European towards Urban Mobility* (Report, European Commission), December 2013.

⁸¹ The city of Templin, Germany, has a population of 15,000 inhabitants.

⁸² Oded Cats, Yusak O. Susilo, Triin Reimal, *The prospects of fare-free public transport: evidence from Tallinn* [2016] Springer.

5.5 Can Malta Follow Suit?

It is known that Maltese public transport relies heavily on route buses. Regarding pricing, it is highly inaccurate to compare the prices of tickets covering a specific number of journeys or days (as are month passes, annual passes etc.) as in foreign cities, such offers generally incorporate various modes of mass transit, and not simply buses. Thus, not only must one take into consideration the issue of supply and demand (more people will generally tend to opt for more efficient modes of transit such as metros and trams) but also the cost of living in the particular state in question.

However, it is relatively apparent that the Maltese population does not have any considerable issues with the pricing of bus service⁸³ but rather, with the quality of service provided. Along the years, since the introduction of the fairly modernised and broader bus system in 2011, the Maltese public transport regime has seen constant changes and improvements, be it adding of routes or the amendments of existing ones, increasing the number of buses and even their frequency. As stated above, the Maltese population rests heavily on private car usage, which continues to increase congestion problems on the roads. This in turn will make public transport seem less attractive, since it will take much longer for buses to complete their routes, where the majority of them will not go directly to the destination of a number of commuters. This initiates a vicious cycle which simply continues to add to the ever-increasing congestion problem, resulting in the negative appeal of public transport use, most especially during rush hour. Harsh measures may have to be taken, to the detriment of the already grievous traffic situation, in an effort to make public transport more attractive to persons from all walks of life. The 'Transport Master Plan 2025' has identified six main transport corridors,⁸⁴ beginning from Sliema, Tarxien, Mosta, Naxxar, Attard and Qormi respectively, each ending in Valletta, and one between Mosta and Msida. These 'corridors' are largely based on information relating to "slow bus travelling times, and high patronage and frequency levels".⁸⁵ However, priority bus lanes only exist in four locations in Malta, these being the Gzira front, part of the Pietà Marina and Msida, Aldo Moro Street in Marsa, and Triq Sarrija (beside the granaries) in Floriana. These roads are generally dual carriageways which are able to accommodate such lanes, however, if the bus service is to improve, there may be the need to implement a greater number of priority bus lanes, which will undoubtedly result in the removal of plenty of on street parking spaces. Of course, the success of these lanes will also depend greatly on the regular monitoring of abuse. Recently, a

⁸³ Respondents are least likely to believe that lower public transport prices would improve travel within cities in Malta (32%).

⁸⁴ Transport Malta, *Transport Master Plan 2025*. [2016] European Regional Development Fund 2007-2013, 136.

⁸⁵ *Ibid.*

harsher fine (€50) was implemented for drivers abusing such lanes.⁸⁶ Nonetheless, as if in defiance of such penalties, drivers continually violate this law, whilst police officers are deterred from issuing fines as such violators have proven to be “abusive” when confronted, thus hindering the proper application of the law.⁸⁷

When faced with such problems, it is commonplace for people in modern day societies to shirk from the idea of working together to improve the system. This is why the Maltese population requires stricter enforcement to subdue the temptation of owning a private car to that of adequate public transport. As Gustavo Perez, mayor of Bogotá, once said, “A developed country is not a place where the poor have cars. It's where the rich use public transportation.”

Despite this, there exists a social niche which may be successfully targeted by the FFPT incentive. Students form a considerable portion of society, and it is a growing trend for University students to own their own private vehicles for use on their University commute, as buses have often been perceived as unreliable, resulting in students having to leave well before academic hours begin, at the risk of missing lectures due to unpredictable public transport schedules from various localities. As an incentive for students to shift to public transport use, the Netherlands has granted them gratuitous travel across the country since 1991, with a free pass per student available for either weekdays or weekends. As a result of this scheme, student trips have increased by a considerable 21%⁸⁸. One may access the link for the weekday/weekend student incentives on the Student Travel Product website.⁸⁹

5.6 Increased use of boat system.

Traffic congestion has become one of the plagues of modern life in a big city. Time spent ensnared in traffic is not simply time wasted; for most of us, it is time miserably wasted'.⁹⁰ Traffic flow has effect on travel time. Transportation researchers have identified paradoxes and clarified the *economics of traffic congestion*, whilst 'pointing to ways in which the congestion problem can be solved with clever applications'.⁹¹ Drivers make 'socially inefficient choices concerning how much to travel, when to travel, where to travel and what route to take'.⁹²

⁸⁶ Traffic Regulation Ordinance, Chapter 65 of the Laws of Malta.

⁸⁷ Times of Malta, *Watch: 42 vehicles break the law in 15 minutes on Marsa Priority Lane*, <<http://www.timesofmalta.com/articles/view/20160720/local/watch-42-vehicles-break-the-law-in-15-minutes-on-marsa-priority-lane.619239>> accessed on 26 July 2016.

⁸⁸ Oded Cats, Yusak O. Susilo, Triin Reimal, 'The prospects of fare-free public transport: evidence from Tallinn' [2016] Springer.

⁸⁹ Studenten Reisproduct, <<http://www.studentenreisproduct.nl/>> accessed on Jul 26 2016.

⁹⁰ Robert Arnott & Kenneth Small, *The Economics of Traffic Congestion* (American Scientist, Volume 82 1994) 448.

⁹¹ Ibid 446.

⁹² Ibid 446.

Given that in certain parts of the island, drivers are repeatedly struck in gridlock on major roads, several commuters are seeking alternative transit trips by means of water transport. Malta is a coastal state. Over the past years, several innovative means of sea transportation were introduced which are not only sustainable and cost-effective, but manage to reduce traffic congestion and accidents on our roads.

These include water taxis which operate between Valletta and the Three Cities, and Valletta and Tas-Sliema or Saint Julians. The Valletta Ferry service operates between Valletta's Marsamxett Harbour and Sliema, and it takes around five minutes to do such a crossing. It is important to mention that commuters can do the crossing to Valletta from the southern eastern shore of the harbour; the Three Cities.

Such a service is undoubtedly contributing to more free-flowing traffic in the inner harbour area. A measure which is relieving congestion whilst promoting new transits.

The Port of Valletta, a natural deep-water harbour, which extends till about 3.6 kilometres inland is becoming a very important hub for a large spectrum of maritime services which are in the eyes of the law sustainable and protect the environment.

Chapter 435, the Environment Protection Act of the Laws of Malta, clearly outlines that is the duty of every person to protect the environment and to 'assist in the taking of preventive and remedial measures to protect the environment and manage natural resources in a sustainable manner'.⁹³ Furthermore, it advocates that the Government should 'take preventive and remedial measures as may be necessary to address and abate the problem of pollution and any other form of environmental degradation in Malta'.⁹⁴

1st Quarter	20,927
2nd Quarter	54,198
3rd Quarter	70,869
4th Quarter	74,222
Total Passengers	220,216

Table 1.1 Passengers who used the ferry services from the **Three Cities** (statistics as provided by Transport Malta)

1st Quarter	60,935
2nd Quarter	179,057
3rd Quarter	229,267
4th Quarter	153,942
Total Passengers	623,201

⁹³ Environment Protection Act (Malta) Chapter 345.

⁹⁴ Ibid.

Table 1.2 Passengers who used the ferry services from **Sliema to Valletta** (statistics as provided by Transport Malta).

From the above tables, it can be concluded that thousands of people are using alternative routes to cross from the Three Cities, Sliema and Valletta.

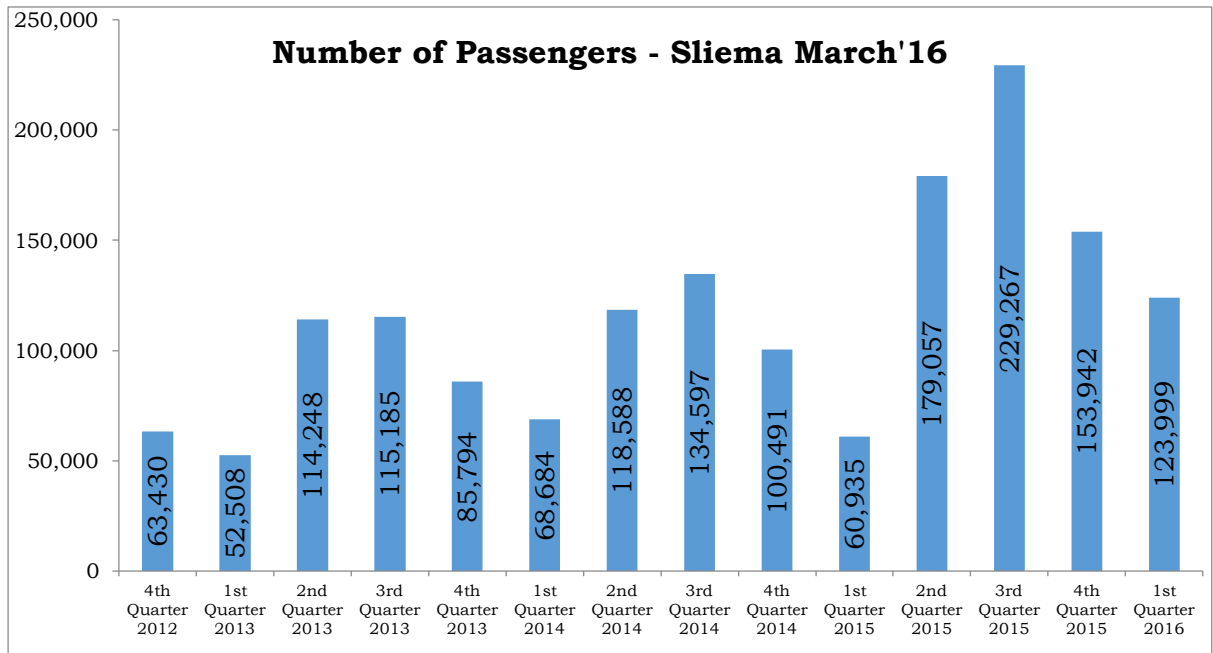


Figure 1.3 Passengers who used the ferry service since 2012

It is interesting to note that the number of passengers seems to be significantly higher in 2015 in the second, third and fourth quarter. The air pollutant emissions from transport are a significant contributions to the overall state of air quality. The Paris Agreement envisages a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C.

Malta can do its part as well and contribute, by promoting the use of eco-friendly means of sea transportation, to reduce traffic congestion and lower emissions.

6. Proposals

Solar Rights

ELSA Malta suggests that:

1. Discussion on solar rights as well as solar obligations are made a top priority by the government and any public or social policy drafted on the matter should seriously consider manners in which renewable energy may be accessible to all.
2. Discussion on solar rights as well as solar obligations are made a top priority by the government and policy makers
3. Currently, due to the lack of specific legislation protecting solar investments, owners can only depend on the servitude of *altius non tollendi*, whereby a neighbouring building cannot exceed a certain height in order not to impair the views of another tenement. This can only be achieved through a deed and not by usucaption.⁹⁵ When considering the current legal landscape, investors of solar panels may only safeguard their investment by invoking their property rights. Therefore, we recommend that after appropriate consultation and discussions, legislative instruments such as those found under Californian law, are introduced in order solidify these solar rights under Maltese law.
- 4.
5. This new legislation should also include appropriate compensation in case of breach since this would provide people with legal certainty that their rights are safeguarded and further provide retribution for those whose rights are not respected.
6. Given the success of solar obligations in countries, such as Israel, with similar conditions to Malta, these types of obligations are also given due consideration with the possibility of implementing measures and policies in their favour.
7. A campaign regarding solar rights and obligations is to be created and launched with the aim of informing the public on the implications of these rights and obligations.

High-Rise

ELSA Malta recommends that:

8. Due attention is given to the effects of high-rise on Maltese heritage and the tourism industry, amongst others, key contributors to the construction industry must coherently and thoroughly assess the effects and implications of high-rise buildings not only in the short-term but also in the long-term.
Exploring the possibility of conferring legal personhood to nature or areas that will be severely affected by an increase in high-rise buildings, particularly those of historical and/or ecological importance This has already been adopted in a number of countries such as Ecuador, which deemed nature to be a legal person in their constitution. This

allowed, amongst others, individuals to petition on behalf of ecosystems and required Government to remedy violations of nature's rights including its right to exist, persist and maintain its vital cycles. More recently, New Zealand, also recognised Whanganui River as a 'a living entity in its own right... incapable of being owned in an absolute sense'. Guardians were also appointed to give a human face to the river, act on its behalf and uphold its values. In both these cases, nature and eco-systems were recognised for their inherent value as rights-holders.

9. Adopting such legal personhood for nature would allow it to sue and be sued in its own name in Court. Therefore, environmentalists and other persons who normally find difficulty in determining that they have a legal interest in a case of environmental protection since they did not suffer damages personally, would have a leeway in Court. Given the implications of such a proposal, ELSA Malta recommends that, should it be taken on board, a number of detailed studies and discussions are held with involved stakeholders in order to strike the adequate balance between the necessary development in Malta and environmental protection for present and more importantly, future generations. Communication on such matters is key to success.

Reducing and Regulating the Number of Cars on our Roads

ELSA Malta recommends that:

10. The presence of CVA (Controlled Vehicular Access) systems around Malta should be increased; the already existing system scans car registration plates upon entry and exit in Valletta and bills them according to the duration of their stay.
11. As an alternative to the above, the Government may invest in Electronic Road Pricing systems, which charge drivers a set amount when passing through particular gantries and particular times.

The authorities should consider analysing the system in Singapore regarding the granting of a Certificate of Entitlement to car owners as a 'permit' to own a car, and possibly consider a steady hike in the costs of owning a car - such measures may prove to be unpopular, yet necessary in the hope of ever combating the islands' congestion problems.

Major political parties should collaborate in order to establish a joint transport master plan. Every five years, a different Government is elected, each with its different policies. However, horizontal congestion is an issue that needs to be handled over a protracted period of time, and not over simply one legislature. Consequently, schemes designed to tackle this issue would outlive most Governments. It is therefore vital for political parties to work out a common transport policy which is to

⁹⁵ The acquisition of title due to uninterrupted and undisputed possession for a prescribed term under law.

be implemented over a number of years, even decades, whichever party is in power. Such a concept would also suggest to the public that the transport issue is so much more than a simple propaganda tool in the hands of such parties.

Fare Free Public Transport

ELSA Malta recommends that:

12. A thorough analysis of the pros and cons of a public transport system which is identical, or relatively similar, to the one used in Tallinn is conducted in the light of Maltese society and their tendencies with reference to public transport dependency.
13. The six main transport corridors mentioned in the 2025 Transport Master Plan must be targeted, to seek to increase the efficiency and reliability of public transport within those areas on one hand, whilst at the same time reducing private car dependency in those same areas on the other.

The transport authorities should continue offering incentives to increase public transport use, and consider further appropriate incentives for particular social niches.

Boat Scheme

ELSA Malta further recommends that:

14. Further incentives be provided to those making use of the current scheme, the further promote its use. One such example may be providing free transport to Valletta Centre, as older residents may find it more strenuous to walk up such a steep hill.
15. Transport Malta should take into consideration the full or partial privatisation of the aforementioned boat system. This will not only increase competition and the possibility of such a service to be offered at special rates which in turn will fuel the economy but may also act as an incentive to reduce the number of cars on the road.

Conclusion

Throughout the paper, ELSA Malta hopes to have instilled a new-found respect towards the problem of congestion. Such an issue has been tackled from a variety of standpoints, not from simply having an overabundance of private vehicles on our roads. While the aforesaid was indeed tackled, credit must also be given to the other aspects of this paper, which endeavour to tackle the issue both from a legal and a social point of view. This is critical towards our goal; ELSA Malta also seeks to bring about a fresh social dynamic and encourage mutual understanding (and aid) of the issues at hand.

The issue of solar rights, or lack thereof, is an ever-increasing concern as more families invest in government incentives to purchase solar panels as a means of generating electricity, in a bid to reach the Europe2020 renewable energy targets. A brief analysis of the California Solar Rights Acts has been given as well as a comparative analysis with other countries. ELSA Malta suggests that any Government in power should take heed of measures being taken by foreign countries and enact formal legislation to protect citizens' rights and accompany the investives which are already in place. This, will in turn, lead to a decreased reliance on formal fuel sources if established on a larger scale. The inclusion of legal protection would surely have a positive impact on the current incentives.

The lack of available land to build upon has driven developers to seek a higher ground and build upwards. The re-emergent question being: "how high is too high?". This has brought about the issue of conserving our heritage vis-a-vis the battle of modernisation. Whilst the need to move forward and improve our island is ever prevalent, one should ensure the cultural heritage and patrimony are respected. Whilst there are in fact benefits to having high-rise buildings, the need for a transparent study on the impacts such buildings will have on the environment, skyline, traffic and alike, is evident. In light of recent developments, such as that of the Paceville Master Plan, ELSA Malta commends the prolonging of the public consultation in accordance with the Strategic Environmental Assessment Regulations. Furthermore, vertical congestion was also tackled in relation to air pollution. A chronological approach was adopted here; starting from the Kyoto protocol to the recent Paris Accord. One must not turn a blind eye to the effect that pollutants have on our environment.

Our road system leaves much to be desired. Traffic during peak times renders it virtually impossible to move from point A to B within a guaranteed period of time. When compared to other, small cities in Europe, Malta fares much worse, having 74% of all trips undertaken using private vehicles. The only way to reduce the influx of cars in our roads is to offer a more efficient transport system and to regulate vehicles in a stricter manner and thus deter private car ownership. For this reason, a comparative view of regulations in Singapore has been made, as well as an analysis of the free public transport initiative, as seen in Tallin. Another key point which may help ease the burden of congestion is the use of an already established boat system. A fair example would be the trip from Sliema Ferries to Valletta. Not only is such a journey more scenic, calming and an overall better experience for the average citizen, but such a solution also eases the strain of traffic in the surrounding areas. ELSA Malta holds that seeing as how the Maltese waters are internationally-acclaimed as

impeccable, it would go without saying that the Government must take advantage of Malta's natural resources and amplify them as a remedy towards this issue.

All in all, ELSA Malta encourages not only the legislators to expand their horizons and look for creative ways, possibly through foreign influence, to tackle such issues and offer legal certainty in the protection of its citizens and our island's well-being. On the other hand, ELSA Malta also strives to encourage active citizen participation. Bellowing in an empty forest is useless, one must take it upon himself to be the change that is evidently needed. Whilst ELSA Malta does criticize the current manner in which such issues are dealt with, it also realises that public apathy is a major concern and seeks to bring about a new sense of faith in public services, which would in turn generate more profit to be used on such systems. For this to be achieved, one must look at the problem of congestion not as a single one, but as an entity, insofar as different, smaller aspects affect each other and form a greater problem – which must be countered.

Bibliography

Dissertations

- Mark Abela, *Aspects of Solar Energy Legislation: A Comparative Analysis and the Maltese Perspective*, (Thesis submitted in partial fulfilment of the Degree of Doctor of Laws (2010)).

Formal Sources

- United Nations Department of Economic and Social Affairs, Population Division
World Population Prospects: The 2015 Revision, Volume II: Demographic Profiles.

Legislation

- California Solar Rights Act, 2014.
- Environment Protection Act, Chapter 345, Laws of Malta.
- The Civil Code of the State of California, 1872.
- Treaty establishing the European Coal and Steel Community, 1951.
- Traffic Regulation Ordinance, Chapter 65, Laws of Malta.
- Planning and Compulsory Purchase, Act 2004 (United Kingdom).

Online Journals

- European Commission Taxation and Customs Union, *Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway*.
- European Commission, Special Euro-barometer 406: *Attitudes of European towards Urban Mobility*.
- Galey, Derek, *License to Ride: 'Free Public Transportation for Residents of Tallinn'*.
- Oded Cats, Yusak O. Susilo, Triin Reimal, *The prospects of fare-free public transport: evidence from Tallinn*.
- Robert Arnott & Kenneth Small, *The Economics of Traffic Congestion*.
- Sulev Vedler, *Free public transit in Tallinn is a hit with riders but yields unexpected results*.
- Transport Malta, *Transport Master Plan 2025*.
- University of Malta, *To drive or not to drive*,
<https://www.um.edu.mt/assets/pdf_file>.

Websites

- BBC, <<http://bbc.com.news>>.
- California Public Resources Code, <<http://codes.findlaw.com/ca/public-resources-code/prc-sect-25982.html>>.
- Central Intelligence Agency, *World Fact Book*,
<<https://www.cia.gov/library/publications/the-world-factbook>>.
- European Commission, www.ec.europa.eu/environment/marine/interaction-with-other-policies/index_en.htm>.
- Malta Today
 - James Debono, *Qui-si-Sana high rise a 'new chapter' for Malta, developer EIA states*.

- *Malta's Car Population hits worrying record.*
- Michael Falzon, *The Dubai-ification of Paceville.*
- Miriam Dalli, *Paceville Masterplan Consultation Extended by Three Weeks.*
- Malta Environment & Planning Authority <<http://www.mepa.org.mg>>.
- Office of Energy, Efficiency and Renewable Energy, Solar Energy in the United States, <<http://energy.gov/eere/solarpoweringamerica/solar-energy-united-states>>.
- National Statistics Office Malta, <<https://nso.gov.mt>>.
- Singapore Customs, <<https://www.customs.gov.sg>>.
- Singapore Land Transport Authority, <<https://www.lta.gov.sg>>.
- The Malta Independent
 - Gabriel Schembri, *Watch: Planning 'Authority launches a new €300 million master plan for Paceville.*
 - Helena Grech, *Mriehel Towers Application Approved, But PA Orders More Parking Spaces.*
 - Julian Bonnici, *Public Consultation on Paceville Master Plan Dominated By Jeers from Angry Crowd.*
 - *Number of cars on Maltese roads continues to rise: 0.7% more in 2015.*
- Times of Malta
 - *38 new vehicles a day on Malta's roads.*
 - Alan Deidun, *Reclaiming land for even more luxury apartments.*
 - Caroline Muscat, *New land for high-rise: plan to create new peninsula at St Julian's comes under fire.*
 - *High rises: Plea for good sense to prevail.*
 - Keith Micallef, *Cars Outpacing Population Growth.*
 - Kurt Sansone, *Anger about Paceville Master Plan Expropriations Justified.*
 - *MLP calls for solar rights as a civil right.*
 - *Watch: 42 vehicles break the law in 15 minutes on Marsa Priority Lane*
- TVM News, <<http://www.tvm.com.mt/en/news/public-consultation-on-paceville-master-plan-is-extended-again/>>.

elsa

The European Law Students' Association
MALTA

WWW.ELSA.ORG.MT