

6 The Challenges for Active Travel in the
Islands of Malta

M. Attard, S. Maas, C. Cañas

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6 The Challenges for Active Travel in the Islands of Malta

M. Attard, S. Maas, C. Cañas

There is now considerable evidence to support the claim that active travel (walking or cycling) can help tackle some of the concerns related to the climate crisis (Brand et al., 2021). Apart from this, walking and cycling have other well-documented benefits linked to public health, well-being, and the overall liveability in cities and urban areas (Frank et al., 2010; WHO, 2018). The current COVID-19 pandemic has also instigated a change in the way people view and experience public space, with more and more areas being dedicated to people walking and cycling in many cities around the world (Rhoads et al., 2021). Indeed, many more walkways and cycleways were created in the first months of the pandemic to cater for safe distances for those walking and cycling, and this at the expense of cars and other motor traffic. Lockdown restrictions have had a tremendous effect on urban areas, with many experiencing less traffic, less air pollution and more liveable environments (Popovich, 2020). There is some hope therefore that, as the world recovers from the pandemic and starts tackling the climate crisis more seriously, the effectiveness of active travel is valued and given the priority it deserves in urban transport policy and planning.

Small island states vary considerably in levels of economic development and, possibly as a result of this, in the development of their transport systems. A comparison of island states shows how diverse island states can be in terms of key socio-economic and transport characteristics. Table 6.1 ranks nine island states from various parts of the world in order of economic development. The strong relationship between GDP and rates of motorisation (vehicles per 1,000 persons) is only broken by the strong and restrictive policies implemented in Singapore aimed at curtailing the growth in motorisation and car dependence (Diao, 2019). The rest of the island states show a growing car dependence linked to increase in GDP and, in some cases, to per capita emissions.

Table 6.1 2019–2020 Key Socio-Economic and Environmental Characteristics for a Selection of Small Island States

COUNTRY	POPULATION (IN MIO)	AREA (KM ²)	PER CAPITA CO ₂ EMISSIONS (T)	PER CAPITA GDP (\$)	VEHICLES/KM OF PAVED ROAD	VEHICLES/ 1,000 PERS
Haiti	11.4	27,750	0.29	2,773	23.5	7.1
Papua New Guinea	8.9	462,840	0.81	4,101	145.8	11.4
Jamaica	2.9	10,991	2.72	8,742	35.9	64.4
Maldives	0.5	300	3.14	13,049	753*	131.8
Mauritius	1.3	2,040	3.69	19,470	56.7	92.5
Trinidad & Tobago	1.4	5,131	27.14	23,728	120.2	714
Republic of Cyprus	1.21	5,527	6.10	37,655	105.7	1,023
Malta	0.5	316	3.53	39,222	148.8	804
Singapore	5.9	728	6.71	93,397	100.8	167.9

Note. *Over 80 % of vehicles in the Maldives are motorcycles with under 6 % being cars. This figure represents the limited road network on the island. Compiled by author from ourworldindata.org, datacatalog.worldbank.org and other various internet sources.

This chapter focuses on the Mediterranean islands of Malta. In 2018, the modal share of walking and cycling in the islands was less than 3 % of all trips (Project Aegle Foundation, 2018). The rise in car dependence since the 90s has seen a steady decline in non-car trips. This has resulted in a steady increase in congestion and traffic related pollution, and a decline in the urban space dedicated to pedestrians and cyclists and overall quality of the urban environment. With Malta having missed its 2020 climate change emission targets, the need to refocus policy on active travel is not only urgent but also necessary to promote sustainability. This chapter looks at the challenges for active travel in the islands through a review of the research conducted in Malta on walkability and bicycle sharing.

The Practice of Walking

The positive impacts of walking and walkable spaces have been documented in decades-long and multi-disciplinary research which claim benefits in socio-economic, environmental and even political arenas (Berg, Sharmeen and Weijs-Perree, 2017; Mackenbach et al., 2014). These impacts make the practice of walking and, therefore, walkability a key factor to address current challenges in the areas of public health, urban and transport planning, economic and social development, environmental sustainability, and cultural enrichment (Cañas and Attard, 2021).

A decline in walking was observed across the western world in the 1970s, mainly attributed to urban sprawl and the creation of car-oriented cities. However, in SISs, the shift to motorised travel happened later, with some being still in the process of developing chronic car dependence. This process can be easily observed in Malta, with the rise of car trips during the 1990s and 2000s (Figure 6.1), and the fast and steady decline in bus and coach trips and trips carried out on foot. The rise of the car and the decline in active travel in the islands has also led to other impacts on health, with high rates of obesity among the population, traffic-related injuries and fatalities, a reduction in social cohesion and overall environmental deterioration (Attard, 2020). All similar factors were trends observed in larger urban areas (Marshall, Brauer and Frank, 2009).

In view of this decline in active travel, some transport research focusing on walkability studied the role of the urban fabric characteristics and land use distribution in supporting and encouraging people to walk to certain destinations (Cervero and Kockelman, 1997), while urban research focused more on the role of streetscape in providing proper public space to pedestrians for their daily life (Gehl, 1987). Subsequently, health researchers interested in increasing walking to improve public health developed walkability indices based on transport and urban principles to study built environment correlates of walking (Frank et al., 2005).

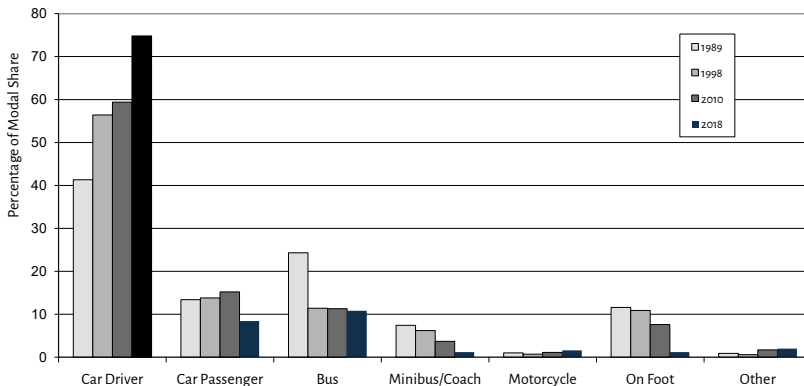


Figure 6.1 Malta's Modal Split 1989–2018
Note. Compiled by author from Transport Malta (2010) and Project Aegle Foundation (2018)

Walkability became a new measurable concept to investigate further implications of walking activity and pedestrian-friendly environments in different fields, such as economics and sociology (Litman, 2018; Greenberg and Renne, 2005). Currently, walkability is being increasingly included as a key component in urban liveability and sustainable development policies and research (Transport for London, 2018; Rafiemanzelat et al., 2017; Guzman and Douglas, 2015).

Using Citizen Science to Understand the Elements of Walkability

The first well-established walkability index was based on objective observations on some large-scale characteristic of the urban fabric and land use, which determine walking proximity to certain destinations (Frank et al., 2005). As more resources and data were made available, more ambitious walkability indices looked into elements and characteristics of the public space at street level, including pavements, crossings, street furniture, barriers and obstacles, the streetscape and so on (Park et al., 2015). The translation of the walkability of a place into certain elements and characteristics of the public space helped to empirically assess the relationships between the walkable environment and walking activity.

However, as walkability increasingly became linked to urban sustainability and liveability research with a strong social and cultural component, the more recent studies have shifted the focus from objective observations of the built environment and walking activity, towards pedestrian experiences of the public space, which requires a more subjective approach to assess what are rather ambiguous concepts, such as sense of safety, comfort, pleasantness or vibrancy. Having said that, both dimensions of the built environment should be taken into consideration, as different associations have been found between the objective and subjective dimensions of environmental features with walking behaviour (Chan et al., 2021).

In addition, because walking can be differently addressed from being just a means of transport to moderate physical exercise, as a recreational and cultural activity, or even a combination of all of them, the environmental determinants influencing walking may vary depending on the specific purpose of the walk (Gao et al., 2020). Furthermore, from a holistic perspective, walking can be seen as a behaviour rather than a specific activity. Consequently, the determinants that support and encourage people to walk span all levels of influence of the socio-ecological model, including personal, interpersonal, environmental, and policy factors (Sallis et al., 2011; Van Dyck et al., 2017).

A growing number of researchers have started to agree on the fact that there is neither 'one size fits all' walkability assessment (Moura et al., 2018), nor a unique desirable walkable environment that satisfies all pedestrians (Stafford and Baldwin, 2018). This context-specific nature of walkability points out the need to take into consideration the particularities of the place and people under study, as well as the purpose of each walkability research or policy. Faced with this reality, there are more and more participatory and pedestrian-centred walkability assessments, which try to better understand the underlying relationships between specific walkable environments and the pedestrians who experience them, so that specific policies and planning interventions can be proposed accordingly.

In order to support active travel policies in Malta, specific research into the elements of a walkable environment was necessary to encourage and enable walking. Cañas, Attard and Haklay (2020) have used a citizen science approach to assess the perceived walkable environment and identify the elements of that environment, which, in turn, affect walkability. This pedestrian-centred approach allows for the collection of georeferenced subjective and objective observations about the walkable environment as part of the participant daily routine, using existing social media platforms and smartphones. These observations create a subjective assessment, complemented by objective data that is very precise, reliable, and provides further insights into walkability.

This work is part of the WalkingMalta Project being undertaken at the Institute for Climate Change and Sustainable Development within the University of Malta, spearheaded by Carlos Cañas (www.walkingmalta.com). Participants in the study are encouraged to take photos of their walking environments and use predefined hashtags to rate their pedestrian experiences through the following opposing variables: #Safe or #Unsafe; #Comfortable or #Uncomfortable; #Pleasant or #Unpleasant; and #Vibrant or #Dull. Participants can also identify and list what influences the experience by including text about certain elements they notice which make an environment, for example, unsafe such as #nopavement or pleasant such as #trees or #greenery. These constructs of safety, comfort, pleasantness and vibrancy have been used in walkability research based on the theory of 'pedestrian needs' (Alfonzo, 2005) and others that have tried to define the walkable environment with a list of characteristics (e.g., Cambra, 2012).

As part of the active travel research projects, Attard, Cañas and Maas (2021) used an activity workshop, attracting a number of local stakeholders, to further engage with participants, and through the methods developed in the WalkingMalta project, collected further information concerning walkability and cycling around the University of Malta, Msida campus. The campus attracts over 11,000 students and 2,000 staff members and is surrounded by major roads that link the island's north and south, and west to east. Accessibility to the campus on foot or by bicycle is not that easy and, therefore, the campus was chosen for this initial workshop to address some of the concerns that hinder active travel.

An initial understanding of the data collected in the workshop paints a rather bleak and discouraging situation for those choosing to walk or cycle in the islands. Figure 6.2 shows how, out of 300 observations collected through the WalkingMalta methodology (Cañas, Attard and Haklay, 2020), many are negative and most are related to safety concerns. The lack of comfort and the many unpleasant experiences further demonstrate how the walkable environment in the islands requires substantial investment if it is to attract and encourage active travel. The elements associated with the experiences were also analysed (Figure 6.2). Pavements, greenery, obstacles and absence of supporting infrastructure are some of the more common elements, which lead pedestrians to enjoy or dislike the experience of walking in Malta's public roads and spaces.

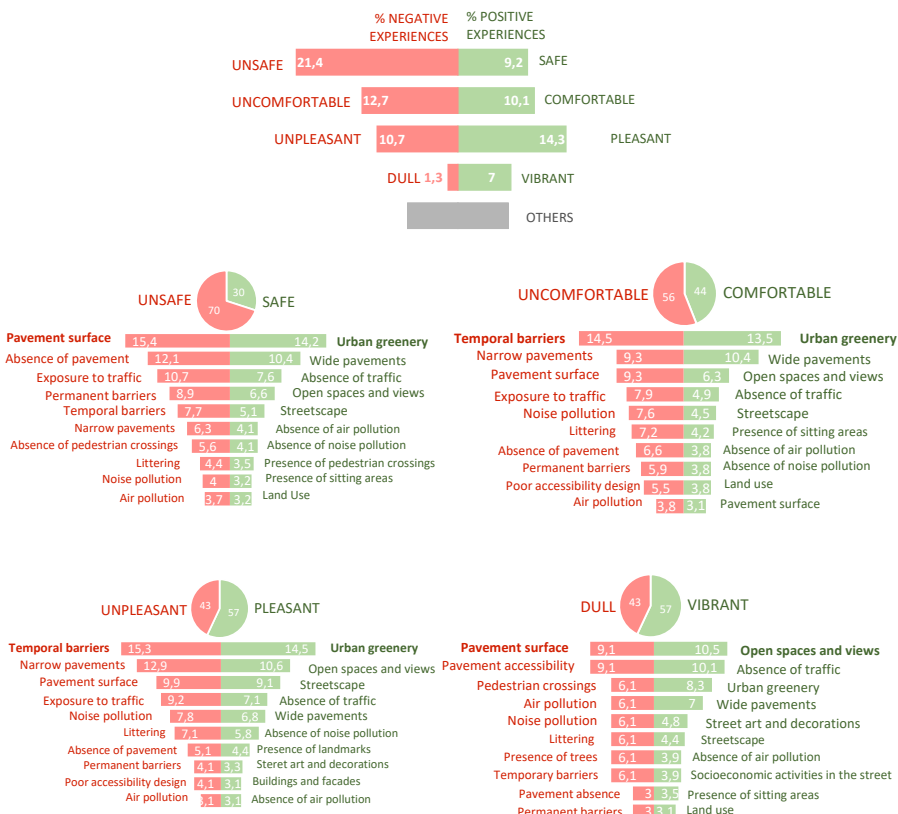


Figure 6.2 Percentage Distribution of Positive and Negative Experiences and Elements
 Note. Compiled by authors

Outcomes and Further Research into Walkability

Research into the practice of walking in the island was not without challenge. Difficult public engagement, just representation of all pedestrians, cyclists and road users, and potential bias brought about by a culture of complaining influence the research and, potentially, the effectiveness of the methods to improve walkability. The need for better and safer infrastructure however is evident throughout the results of the research, and tangible outcomes, in the forms of reports and recommendations to local authorities to improve walkability have given the WalkingMalta project enough visibility and local public engagement (see, for example, Calleja, 2020). This has put the issue of walking on

the national agenda. The research and subsequent workshop also produced a detailed report in 2020 on measures to improve local roads, starting from the roads leading to the University of Malta Msida Campus (Institute for Climate Change and Sustainable Development, 2020). Further research will go into the validation of the WalkingMalta methodology and the potential analysis techniques for understanding the experiences and elements that make up walkability.

Bicycle Sharing as Active Travel

Around the world, there are some 3,000 active BSSs. And although these schemes have been available since the late 1990s, many developed just over the last decade (Galatoulas et al., 2020; Fishman, 2016). Research into the systems have tried to establish their impact on cycling modal share and their potential to achieve urban mobility goals (Médard de Chardon, 2019). However, most of the research has focused on medium to large cities where cycling and cycling infrastructure was already established. Islands, on the other hand, alongside so-called 'starter' cycling cities with low to negligible cycling and infrastructure are still very much under-researched (Félix et al., 2019). The contribution of cycling, as part of active travel measures that promote healthier and cleaner travel, should be included in any island transport policy, and an understanding of how this can be affected by the introduction of BSSs adds to the current literature, especially when it focuses on islands.

Cycling in Malta has the lowest share in the islands' modal split, it accounts for less than 0.5 % of trips and cycling infrastructure is limited, fragmented and mostly located outside the urban area. Recent infrastructure interventions for cyclists on reconstructed and widened roads in the islands remain fragmented and inconsistent in style, from sharrows and 'share the road' signs to painted cycling lanes on the road and roundabouts, bridges and lifts to cross large junctions and arterial roads, as well as separated cycling paths in certain locations (Farrugia & Maas, 2020). According to studies carried out in the islands, cycling is perceived as dangerous and therefore not an alternative to the car or 'safer' modes of transport (Maas and Attard, 2020; Transport Malta, 2016). In addition, 34–49 % of the population does not know how to cycle (Maas and Attard, 2020). This has also been linked to the high rates of obesity among the population (58 % of adults) and the lack of walking/active lifestyles in general (Superintendence of Public Health, 2012).

The Characteristics of the Bicycle Sharing Scheme in Malta

Over the recent years Malta, like many other islands and cities worldwide, experienced the introduction of bicycle sharing. Despite the low use of bicycles, Nextbike Malta started operating shared bicycles in late 2016. It has now 60 stations and over 400 bicycles, and in 2019 it registered around 11,000 users. The majority of the stations are located around the central urban area, north of Valletta with other isolated clusters in other parts of the island. A second operator, Tallinja bikes started providing electric shared bicycles in Valletta and later in other locations including the University of Malta campus. A quick overview of the locations assigned for bicycle sharing stations shows how they are strongly linked to tourists, foreign residents and students (Maas et al., 2021; Maas, 2021).

The research into so called 'starter-cities' is very important to understand the role of bicycle sharing activities as a promoter of cycling. Maas et al. (2021) report on the reasons for using bicycle sharing and cycling as mode of transport in Malta, Limassol, and Las Palmas de Gran Canaria. There is significant association, by frequent shared bicycle users, with use of other 'alternative' modes of transport such as public transport and taxis, the provision of cycling paths and lanes, and improved (perceived) road safety, short distances to location and frequency of home and work destinations, and motivating factors such as money-saving and convenience.

The profile of shared bicycle users is also an important element to consider. Maas (2021) reports that in Malta some 73 % of the users are highly educated, employed or students. This is in line with the characteristics of other islands (Limassol and Gran Canaria), but also other shared bicycle systems where the majority of users are educated and employed (Fishman, 2016; Médard de Chardon et al., 2017). They also present interesting characteristics with regard to mobility options. Figure 6.3 shows what other modes of transport, bicycle sharing users have access to in Malta.

The potential to use multiple modes of transport when cycling, or using a bicycle sharing scheme (BSS) is another important element, and whilst in Malta many users do not combine modes (over 30 %), those that do, use walking (55 %) and public transport (20 %). The least used is the car (Maas, 2021).

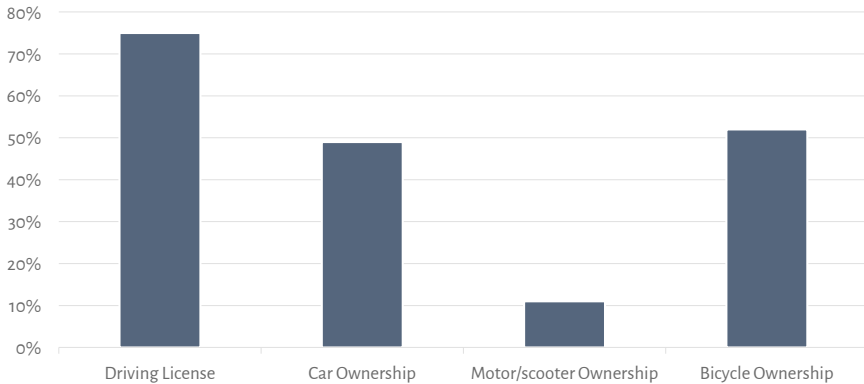


Figure 6.3 Access to Transport Modes by Bicycle Sharing Users in Malta
Note. Compiled by author based on Maas (2021)

Considering that the scheme in Malta is still relatively new, Maas (2021) also investigated previous travel behaviour among shared bicycle users in Malta in an attempt to establish possible modal shift. Whilst 11 % of trips were new trips made with shared bicycles, a considerable number of trips were shifted from walking (34 %) and the bus (18 %). This is not surprising given the convenience and speed which cycling offers when compared to both walking and using the public transport. A very positive 17 % of trips were shifted from the car whilst 10 % were already bicycle trips, carried out by personal bicycles. The remaining 10 % of trips were shifted from motorcycles and taxi, both positive shifts to cleaner modes of transport. Overall it becomes evident that some benefits can be accrued through the implementation of bicycle sharing, and that further investment in infrastructure, for example, would go a long way in attracting travellers from highly polluting modes to cleaner and healthier modes of transport.

Discussion

With the publication of the 6th Assessment Report by the IPCC in August of 2021, it is very clear that urgent action is required on all fronts to mitigate man-made emissions and adapt our cities to new realities of climate change. For many countries, including islands, transport remains a growing concern as emissions from increasing car use continue to rise. And as urban areas continue to attract more and more populations

(and tourists), the growing need for sustainable urban transport solutions become more critical. This is also true for islands that are experiencing economic development, and as a consequence have struggled to control or contain the rise of the car over other, less environmentally damaging forms of urban transport.

As islands with unique geographies and socio-economic characteristics, there lies opportunities for leading the front towards more sustainable mobility, particularly on active travel. Malta, the case study showcased in this chapter, is one of those islands, which has developed economically over the last few decades, with negative consequences on its environment and public health. Despite the challenges of shifting more successfully to active travel modes, the island has many opportunities brought about by its geographic size, population density, climate and a relatively strong economy that is able to invest in the necessary infrastructure to support change.

Our research into walking and walkability provide some interesting preliminary research findings that point towards a complex relationship between the walkable environment and pedestrian experiences in the Maltese context. Over 65 different environmental elements and characteristics of the public space were identified by the participants in the WalkingMalta project so far, as relevant influences on their walking experience, either in a positive or negative way. These determinants arise out of the presence, absence, and characteristics of pavements and walkways, pedestrian crossings, street furniture, green urban areas, barriers and physical obstacles along the way, buildings, street art and decorations, open spaces and views, exposure to traffic, air and noise pollution, odour, littering, weather conditions, urban fabric and land use, outdoor activities, stray and wild animals, public transport and more.

Some of the elements and characteristics identified by the participants are in line with current research, such as the importance of green urban spaces for positive pedestrian experiences or the negative impact of the exposure to fast traffic. However, the context-specific nature of this participatory research has helped to find out the specific issues in the Maltese context. Some of these include architectural barriers from the construction of private steps or ramps on the public pavement, recurring temporal barriers from rubbish bags due to the daily day-to-day refuse pick up, or simply the many parked vehicles on the pavement. Ultimately many complain of poorly managed roadworks and building construction sites that negatively affect pedestrian experiences. Such observations can be of great help to identify specific measures to tackle these singular issues at a local scale.

The long list of determinants identified by the participants as relevant influences on their pedestrian experiences show a remarkable diversity of elements at different urban scales and temporal components. Pedestrians interact with different elements

at the same time and, although some elements can play a significant role, their overall experience hardly ever comes from an isolated determinant, but from the combination of all of them together. This highlights the need for more comprehensive and multi-disciplinary policy and planning interventions to improve the walkable environment in Malta and beyond, in order to support and encourage more walking.

Investment in alternative modes of transport on its own does not bring about significant modal shift; effective change in mobility behaviour only occurs when there is a combination of 'carrots' and 'sticks' (Nikitas, 2018; Piatkowski et al., 2019). The combination of efforts to increase the safety, convenience, and feasibility of walking, cycling, and public transport, with policies to reduce and restrict car use has been shown to have the greatest positive impact on increasing liveability and sustainable mobility in cities and achieving modal shift towards active transport (Buehler et al., 2017; Oldenziel et al., 2016; Piatkowski et al., 2019).

Concerns over road safety are the main barrier to promoting cycling in starter cycling cities (Felix et al., 2019; Maas et al., 2021). The creation of an integrated cycling network, comprising segregated cycling paths along high-speed or high-volume roads, as well as traffic-calmed streets, connecting residential, employment and entertainment areas, could further promote cycling and BSS use. In the historic urban fabric with narrow streets, which are often one-way, there are opportunities for applying filtered permeability solutions (interventions allowing pedestrians and cyclists to pass, but not motorised vehicles) or contraflows for cyclists, allowing for more direct routes in the cycling network. The growth in cycling modal share in Seville (Marqués et al., 2015), a Southern European city that has promoted cycling in recent years through the creation of a connected network of separated bicycle infrastructure and the introduction of a BSS, highlights the potential for other 'starter' cycling cities like Malta and many other islands.

Enabling and promoting the complementary relationship between (shared) bicycle use and public transport have the potential to promote multimodal travel as an efficient alternative to private vehicle use. Using public transport for longer distances and (shared) bicycles to cover the first or last mile can provide an avenue for growth for cycling modal share and bicycle sharing use (Handy et al., 2014; Heinen & Bohte, 2014; Olafsson et al., 2016). And this has been the experience with the new mobility operators and services looking at extending the offer to users, from bicycle sharing to e-scooter sharing and other on-demand public transport services which have been implemented in Malta in the last decade.

Conclusions

The need for a modal shift to active travel in urban areas has become a priority for many cities looking at adopting sustainable mobility practices. This has been further encouraged by the recent COVID-19 pandemic through a mix of measures implemented in various parts of the world to provide more space for people to walk and cycle. The overall positive and swift reaction to changing behaviours and urban environments is testament to the opportunities that politicians and authorities have to take forward the necessary changes to urban transport systems. In islands, which are struggling with increasing car dependence and declining urban environments, the potential of active travel seems an obvious solution. Many are relatively small with short travelling distances, have good weather conditions that support active mobility throughout the year, and with benefits accrued from improving the quality of the environment that matches their dependence on a quality tourism product which, in turn, supports the growing tourist numbers.

Research into walking and cycling on islands is very important since there is a dearth of literature, which focuses on such island states and case studies. Urban areas in islands might be similar in size to small and medium cities in larger countries, however, their isolation, specific geographies, socio-economic and cultural characteristics, weather and governance structures make for unique micro urban areas that require specific attention. This chapter reviewed the work that is currently happening at the Institute for Climate Change and Sustainable Development at the University of Malta with respect to walking and cycling. Some of the results point towards specific policy and planning actions that would benefit and encourage more active travel in the islands.

It is hoped that this will instigate further research into active travel, and more evidence is produced in support of policies that seek to prioritise sustainable mobility. Ultimately, it is in the interest of local and national authorities to aim for more sustainable development, less emissions and improve well-being. Being islands, with many dependent on the tourism sector for economic growth, the interface with tourism travel is a key and important research area. Further work in this regard is required to establish best practices and measures to align more effectively with growth in tourism, active travel, and sustainable travel.

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